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A REVIEW OF FOREIGN FARM POLICY, PRODUCTION, AND TRADE

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FRENCH EQUATORIAL AFRICA

By Pieter K. Roest*

From the Gulf of Guinea to the Caspian Sea stretches a solid rampart of territories controlled by the Allies, barring the European Axis powers from the most vital parts of Africa and Asia. Keystone in this bulwark is French Equatorial Africa, now under Free French rule, a strategic center for the Allies' war effort in Africa. For decades the most neglected of France's big colonies, French Equatorial Africa is economically far behind the neighboring British colonies and French West Africa. It is still a country of immense undeveloped resources - mineral, vegetable, and animal. Exportation of forest products - mainly wood and palm kernels - was its main source of income up to the present war. Its primitive native agriculture is confined largely to food crops for local use and some cotton for export. European planters raise most of the other export products - coffee, cacao, fibers, and some rubber, which is gradually replacing the once flourishing trade in wild rubber. Little was done officially for agriculture until 1930. Its natural wealth, its handicaps, its fate under French rule before 1940, and its present potentialities are of special interest today, when colonial problems are seen to play a determining role in world affairs.

French Equatorial Africa is bounded on the West by the Atlantic Ocean, from Spanish Guinea (Rio Muni) to Cabinda, a detached part of Portuguese Angola. From Spanish Guinea the boundary runs eastward along the French mandate of Cameroon for over three hundred miles, then bends north towards Lake Chad at the northeast corner of British Nigeria, continuing along French Niger to Libya, which forms the northern border. In the east the country is separated from Belgian Congo by the lower Congo river and its great tributary, the Ubangi, and, north of the latter's source, by the Anglo-Egyptian Sudan.

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French Equatorial Africa is divided into four Provinces: Gabon (capital, Libreville), Middle Congo (capital, Brazzaville), Ubangi-Shari (capital, Bangui), and Chad (capital, Fort Lamy). Since June 30, 1934, French Equatorial Africa has constituted a single administrative unit under a Governor General, assisted by an administrative council and a Secretary General, who acts as the Governor General's deputy in his absence. Each Province is administered by a Lieutenant Governor under direction of the Governor General. There is only one budget for the country as a whole. The colony's capital is Brazzaville on the lower Congo, close to Leopoldville, the capital of Belgian Congo, on the other side of the river.

TABLE 1.—Area and population of French Equatorial Africa, by Provinces, 1936

COLONY	AREA	POPULATION	
		EUROPEANS	NATIVES
	<i>Square miles</i>	<i>Number</i>	<i>Number</i>
Gabon	93,218	1,223	408,516
Middle Congo	166,069	2,302	744,503
Ubangi-Shari	238,767	875	833,041
Chad	461,202	549	1,432,006
Total	959,256	4,949	3,418,066

The density of population is low - 3.6 per square mile. This is partly explained by the enormous area (about 175,000 square miles) of tropical forest, which stretches from the coast to the deep interior, and by the large expanse of desert in the north. It also reflects the relatively undeveloped condition of the country as a whole and the disastrous effects of the now suppressed slave trade, which flourished unchecked for three centuries.

PHYSICAL FEATURES

Topography

French Equatorial Africa straddles the Chad and Congo Basins, covering most of the former and the northern part of the latter. These basins are areas of shallow depression in the vast continental plateau of Africa, which averages about 3,000 feet in altitude. The Chad is the lower of the two, but still lies about 800 feet above sea level. They are separated from the coast by the Cameroon highlands and the Crystal Mountains. A relatively broad stretch of tableland runs east from the Cameroons, reaching its greatest height in the Bongo Massif (4,590 feet) and serving as a divide between the two great basins. From the Bongo Massif run spurs to the north and to the southeast, forming the natural boundary between the French territory and the Anglo-Egyptian Sudan.

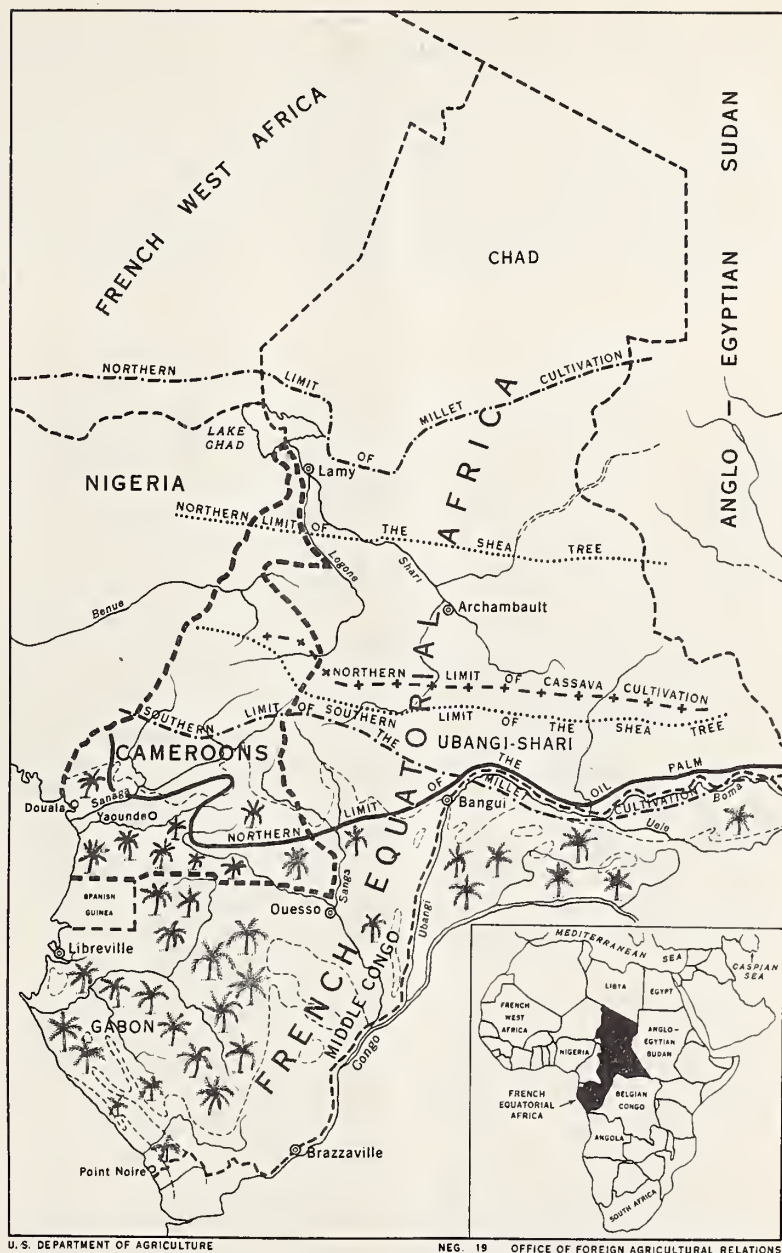
The Congo breaks through the Crystal Mountains in a series of rapids below Stanley Pool and becomes navigable again at Matadi, at the head of the deep estuary that conducts its waters to the Atlantic Ocean. But the waters of the Shari system empty into the enormous swamps of Chad, with Lake Chad as their center. Unable to penetrate the Cameroon highlands, the waters of the Chad Basin are nevertheless beginning to find a way to the sea, for the headwaters of the Benue River, the greatest tributary to the Niger west of the Chad area, are slowly cutting back the divide

separating them from the basin, so that in the rainy season the two systems connect. North of the Chad Depression the desert slowly rises to the Enned Plateau in the east (4,756 feet at its highest point), and the Tibesti Mountains in the northeast, with several peaks of over 10,000 feet.

Climate

From the coast, which stretches from 5° south latitude to 1° north, the equatorial heat and humidity spread inland clear across the Provinces of Gabon and Middle Congo and along the southern fringe of Ubangi-Shari. North of this area, the climate changes to that of the Sudan; and beyond the Lake Chad latitude, about 14° north, is found the desert climate of the Sahara. The moist equatorial climate is characterized by a vast low-pressure system, noted for its calms, or doldrums, very little change in temperature, and a well-distributed rainfall, generally over 60 inches a year. The Sudan climate is hot, too - especially in late spring when the

monthly mean temperature may exceed 90° F. - but shows a wider daily and seasonal range, although the mean monthly temperature rarely falls as low as 70° . From October to March, when the Sahara is a high-pressure area, the northeast trade winds blow across the Sudan to the equatorial trough of low pressure. This regular winter wind, the harmattan, is very dry and usually quite hot and dusty. It desiccates vegetation wherever it blows. In summer the low is in the overheated Sahara, and the southwest



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FIGURE 1.—Map of French Equatorial Africa, showing the tropical rain forest and production limits of principal crops.

monsoon winds are drawn across the ocean into the continent, bringing rain to the Sudan in quantities that decrease northward from about 50 inches in the neighborhood of the great forest to less than 10 inches on the desert fringe.

The northernmost section of the colony has the true Saharan climate, with exceedingly high summer temperatures (frequently over 120° F. in the afternoon), a comparatively low winter mean (below 60° in some districts for December-January), and a very wide diurnal range, commonly over 50°. Winter night frosts are not unusual. Humidity is low, and precipitation so low and so sporadic that it is negligible.

Soils

In the Gabon and Middle Congo regions of high rainfall, the soils range from true laterite in the areas of smooth topography, through lateritic red loams to immature red loams in those sections where the topography is rough and the products of weathering are kept young through erosion, which carries the soil away from the parent rock before it has become leached or before the subsoil has become compacted or hardened. Soils with iron crust in the subsoil or on the surface are confined to smooth surfaces, either flat or gently sloping, and in regions of greatly varying rainfall; they occur also beneath swamps or depressions filled with water only during the rainy season and are presumably typical for the Lake Chad area, as well as for the savanna region of Ubangi-Shari. These ferruginous red loams are not, as a rule, highly productive, although if the iron crust lies 3 or more feet below the surface they may be (20).¹ In the river basins are extensive alluvial deposits. In the dense forest the soil is kept devoid of humus by a rank growth of thallophytes and other plants that live on decaying organic matter and thus prevent the formation of a rich topsoil. Native cultivators fertilize their forest clearings by burning what they have cut down. Little wonder they soon exhaust the soil and must make new clearings periodically. The savanna forest and the savanna itself do possess a humus surface, and hence are much better suited to cultivation.

Vegetation Zones

Throughout the southern half of French Equatorial Africa the tropical rain forest, or selva, is the dominant vegetation mantle, broken here and there by park savanna where the rainfall is less than 50 inches annually, as in the neighborhood of the Congo estuary and the areas adjoining the lower Congo Basin. Also, in altitudes over 2,000 feet the selva is replaced by a less dense, mostly deciduous forest. The tree growth is heaviest along the rivers, but on the interriverine tracts park savanna may predominate over forest - in contrast to the continuous selva of the Amazon Basin, a true lowland. Hardwoods (including cabinet woods, such as mahogany), the oil palm, and a variety of rubber-bearing plants are characteristic of this African selva.

In contrast, the northern half of the colony consists of savanna and desert. The savanna begins where the forest thins out, and grasses replace the dense matted undergrowth so typical of the tropical rain forest. The trees are lower, and only the species capable of living through a dry season of several months - with its great fire hazard - can survive here. Such is the massive baobab or monkey bread tree and a

¹ Italic numbers in parentheses refer to Literature Cited, p. 108.

number of varieties of acacias. Along rivers and swamps the tropical rain forest often penetrates deeply into the savanna. To the north the trees become scarcer and the grasses lower, until the country changes to a treeless savanna, a semidesert, and finally a true desert, with only a few desert shrubs surviving.

In the Lake Chad area enormous swamps modify this picture; there a dense growth of hydrophytic grasses and grasslike plants is found. They vary in height from 3 to 12 or 15 feet, and - except when flowering or dying back - present a rich green appearance. Trees are rare, but small ambatch trees occur, conspicuous for their bright yellow flowers. In the north of Chad Province, vegetation is found only in oases, except for some desert shrubs.

Nature and Man

Natural conditions in French Equatorial Africa are, on the whole, resisting rather than encouraging man in the country's economic development. In the north the desert and in the south the inhospitable forest are obstacles to human enterprise. Even the backward natives of the dense jungle live largely on products that were not indigenous to this area, such as bananas, oil palms, peanuts, and cassava. Rice, sorghum, millet, sugarcane, mangoes, yams, citrus fruit, sesame - all these came from the Orient. Corn, tobacco, pineapple, guava, avocados, pimentos, sweetpotatoes, tomatoes, and beans were all imported from America. And all domestic animals and fowls are of foreign origin. In the desert, and in the tsetse-fly-infected jungle, livestock cannot be kept; and in the former agriculture is impossible without irrigation and in the latter difficult because of the rank growth of weeds and pests. Only the savanna in between invites human habitation and work.

Yet some important natural products used by man are indigenous to French Equatorial Africa. First of all are various woods - some of great value, such as mahogany, teak, ebony, purplewood, and ironwood; others less valuable but yet very useful for cabinet work, joinery, and timber; finally light woods, such as the ubiquitous bamboo. Next in importance are the oil producers, such as the shea tree and the castor-bean. Truly aboriginal are the gum trees, such as the copal, and the landolphia, or rubber vine, and some other rubber-yielding plants and trees. Finally, in the savanna region particularly, are cotton, various palms, and the monkey bread tree, which furnish fibers suitable for weaving, basketry, or brush making. And, of course, the abundant game and fish are native to the country.

In general, then, the country lends itself better to a seminomadic life of hunting, fishing, and collecting than to a settled pastoral or agricultural economy, for which only the highlands of the savanna type offer favorable conditions. And it is across these plains, as well as along the few open routes to the Atlantic and to eastern Africa, that Europeans, Arabs, and traders from India have brought in the cultivable plants and domestic animals that now figure so largely in the native life.

THE PEOPLE

In the people, as well as in the climate and vegetation, the contrast between the northern and southern half of French Equatorial Africa is conspicuous. In the southern forests dwell Bantu tribes. They are Negroes with traces of an early

admixture of Hamitic blood and culture. In friendly contact with them live the few remaining scattered groups of Negrillos, pygmy hunters of the densest tropical forest, who still use the bow and poisoned arrow. In the northern half of the colony are found the Sudanese Negroes, showing more Hamitic infusion of comparatively recent date than their kinsmen of West Africa, increasingly so toward the desert.

The stronger the Hamitic influence, the more pastoral the tribes. Around Lake Chad the influence of the Saharan conquerors is also noticeable in the social grouping. There are numerous Moslem emirates, each with a ruling Hamitic or Arab aristocracy but a negroid population basis. Islam is all-important in the central Sudan, in distinction to its partial and superficial significance in most parts of the West African Sudan. In Chad Province French authority is still rather nominal, especially in the northern areas, and the old pastoral ways of life of the inhabitants continue virtually unchanged. The culture of these pastoralists is much superior to that of the Bantu forest dwellers in the south, although among the latter there are a few advanced tribes, such as the Batekes of Middle Congo, who are shrewd traders. In contrast to the northern half of the colony, the southern half - Gabon and Middle Congo - has remained practically untouched by Mohammedan influence.

It is asserted that the difficulties and dangers of life in the forest, the perpetual lack of sunlight, and the ravages of sleeping sickness and malaria combine with the oppressive heat and humidity to make the forest dweller restless, suspicious, rather somber, and often aggressive. Fernand Maurette (12, p. 44) writes:

Because he needs much territory to subsist, any stranger who happens along is readily considered as an intruder and an enemy, every neighbor as an usurper whose goods it is quite right to take. * * * The dweller of the savanna, on the contrary, lives in the broad sunlight and the open air. The vegetation is rich enough in trees to offer him numerous fruits; it is open enough to make clearings and cultivation feasible. Living in relative ease, he is gay, even exuberant; needing but a moderate area for subsistence, he tolerates neighbors, is not without hospitality. In short, he is relatively peaceable.

The Bantu of the forest as well as of the savanna is said to be impulsive, showing a childlike egotism in his actions, keeping faith only within the limits of his religious formulas, clinging to tradition, but withal fairly intelligent where his interests are concerned, although poor in abstract reasoning power and devoid of inventiveness. His language is correspondingly poor: of the 182 Bantu tongues listed the richest contains at most 5,000 words, expressing about 3,000 ideas and no abstractions and relating everything to human use. The Bantu works only when he must. In the savanna little effort is needed for survival; in the forest little energy for work is available. Obviously, this inertia is a great handicap to economic progress, especially where the population is so sparse. Yet in Katanga (Belgian Congo) it has been shown that, under proper conditions and with the right kind of reward, the native can become a good worker.

A native's economic position is measured by the number of wives he has been able to purchase and the number of his children. Slaves are a third form of wealth, now rapidly disappearing. The family is primarily an economic unit and a man's chief asset. Land and hut count for little, as these are frequently abandoned for a new site, on which a new hut is built. The labor of the members of the family and the price to be obtained for marriageable daughters are the things that count. In the forest one may still find wholly self-sufficient families.

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Normal life in the forest is a series of well-timed expeditions - fishing, hunting, collecting, and cultivating. On account of the quick exhaustion of the soil around the village, cultivating, too, must be conducted at greater and greater distance as the years pass, until the village itself is moved to a fresh site.

This seminomadism is less pronounced in the savanna area, but it is still present there because the vegetable mantle is set afire in the dry season and, when the soil is exhausted by cultivation, it takes much more time to recover than it does in the forest. So shifting cultivation is the rule in the savanna, too; but villages are larger and move less frequently than in the jungle. The firing of the savanna is done for hunting, too, and this wasteful use of the land has had serious consequences. In many areas vegetation does not recover from these ravages, and the earth is left denuded. So far, the sparsity of the population has permitted such ruthless exploitation, and the vast territory occupied by the natives has supported them with little effort on their part, especially in the north where a pastoral life supplements or replaces other forms of economy.

### LAND UTILIZATION AND LAND POLICY

Active French penetration of the Gabon and Middle Congo territory occupied the last two decades of the nineteenth century. Ubangi-Shari was gradually included, but not until the first world war was Chad brought entirely under control (1, pp. 29-63). In the nineties, the example of the Congo Free State suggested a policy of development for French Equatorial Africa through European entrepreneurs with monopolistic rights over forest produce. Certain concessions of this type were granted in 1893, but revoked in 1895 as the result of agitation in France. In 1899 a decree was issued laying down the terms on which concessions should be granted and presumably protecting native rights. Only unoccupied lands were declared State property. But this claim ignored completely the native system of shifting cultivation under communal ownership of land.

### French Law Versus the Native System of Tenure

In the treaties made with chiefs during the original occupation of the French Congo the Government agreed to respect their rights over land; but native lands were defined in the ministerial instructions of 1899 as only the areas necessary for the cultivation of foodstuffs. Attempts in 1901, 1902, and 1903 to delimit the native reserves failed, because of opposition of the concessionaires and the absence of a survey. In 1907 the West African Court of Appeal held that, in succeeding to the rights of a chief over territory in which no individual property was recognized, the French Government acquired absolute rights over all land not held under title - a decision dictated by the inability of French law to recognize any right in land other than that of the individual, with the result that a communal tenure can have no status at law. Yet this is the only system of tenure that African natives know. With them, land belongs to the community; it is not to be bought or sold, but to be used. To the chief, who represents the community, falls the duty of assigning parcels of this land to each family for use, and this assignment is usually left unchanged until the family breaks up or the whole village moves to new territory. Always the lands held are many times the area cultivated.



In French West Africa, since the decree of October 8, 1925, effective title to land can be obtained by registration or by simple request (15). In French Equatorial Africa a corresponding procedure did not become effective until 1938 (5).

### The Era of Big Concessions

In 1899, monopolistic rights over about two-thirds of the occupied territory were granted. Some forty companies, with a registered capital of less than 60 million francs, were thereby given a monopoly over forest produce for 30 years (theoretically subject to native rights in areas to be defined by the Government) in return for the payment of a low annual rent and of 15 percent of their profits. Freehold was ultimately to be given over developed areas.

In practice, the big companies did as they pleased. Severe hardships were inflicted on the natives, who were gravely restricted in the use of their land. French public opinion was aroused, but economic failure finished most of the concession companies. Only one-fourth of them had made any profits by 1906, and under Government pressure (1910-12) a number of them abandoned their rights over large areas in return for increased privileges over smaller tracts. Thus the State secured reversion of 77,836,500 acres of land out of 214,977,000 acres originally granted (8, pp. 785-788). In the meantime, monopolistic exploitation of rubber vines<sup>2</sup> went on until 1929, when the era of big concessions came to an end. It was followed by an era of small concessions for plantations of rubber, coffee, bananas, cacao, and oil palms, and more recently by an active policy of stimulating native production, especially of cotton and coffee, and - in Gabon - of oil palms (14, pp. 89-91).

Thus the agricultural development of French Equatorial Africa could not fully begin until 1930. Up to that time the colony was known as France's "stepchild," neglected by investors and politicians alike. The comparatively few plantations of earlier years were handicapped by insufficient capital, lack of experience, units too small for remunerative cultivation, and lack of official encouragement. The first few that succeeded were almost all located in the coastal region of Gabon and concentrated on cacao, coffee, vanilla, citrus (for lime-citrate production), and - rarely - oil palms or rubber (3). Only cacao attained any commercial significance; its exports rose from 9 short tons in 1897 to an average of 275 tons in the middle twenties, after which it decreased to 187 for 1926-30.<sup>3</sup> So, during this long period of neglect, the colony's agriculture consisted almost entirely of some native cultivation of food products for home consumption and some European-owned cacao plantations; while a handful of French companies exploited the forests for valuable woods and rubber.

### The Gathering of Wild Products

In its present undeveloped state, French Equatorial Africa has its economic foundation largely in wild products gathered by the natives. The most important of these are wood, rubber, oilseeds, copal gum, salt, native soda, wax, and ivory.

<sup>2</sup> Instead of making incisions, the natives charged with rubber collection cut the vines completely, thereby making them bleed more profusely but at the same time destroying the plants.

<sup>3</sup> Export figures for years after 1915 include a small quantity of exports from Middle Congo, as given by the International Institute of Agriculture in various issues of the International Yearbook of Agricultural Statistics.

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Wood easily leads; the annual exports of okoumé (resembling mahogany) during 1936-38 averaged 1,020,730 short tons, with an average value of 99,036,000 francs.⁴ For all other woods the figure was 117,419 tons, valued at 11,336,000 francs (4). Bruel (1, p. 295) estimates that the optimum annual export of okoumé would be 330,690 tons, as it would enable the forest to replenish the supply on the basis of an 80-year cycle - that being the time needed for this tree to mature fully. As many as twenty thousand native workmen are employed in lumbering, but so many cannot be permanently kept so employed in such a sparsely populated region. Ten thousand well-trained natives, properly equipped, could handle this optimum output of okoumé, together with considerable quantities of other hardwoods - mahogany, ebony, coral wood, African walnut, ironwood, as well as mangrove wood, used for railroad ties.

The bulk of the exported wood consists of okoumé logs. The opening of the Congo-Ocean Railway and the port works of Pointe Noire were expected greatly to facilitate the shipping of lumber from several areas that had been held back for lack of outlets. Lack of roads handicaps the full development of the lumber industry and may be a blessing in disguise, for along easily accessible streams the valuable woods disappear too quickly and conservation policies are still in their infancy in this colony. The main reason okoumé is the chief export item is that it is a light kind of mahogany that will float, whereas true mahogany, ebony, and several other valuable woods are too heavy to float and consequently have to be cut into such small logs that European buyers prefer the larger wood of other countries. Okoumé is used in the manufacture of cheap furniture and cigar boxes.

Wild rubber was at one time the main object of the big concession companies in French Equatorial Africa, but it could not compete ordinarily with the swiftly developing plantation rubber of the Orient. In times of high rubber prices, however, it still pays to gather the native product. In the forest areas red rubber is obtained from *landolphia* vines, and black rubber from the ireh tree (*Funtumia elastica*); while in the open savanna rhizome rubber is obtained from underground creepers of *Landolphia tholonnii*. Before the days of plantation rubber, for example in 1911, the colony exported almost 1,870 tons of wild rubber, valued at 16 million francs and representing 62 percent of all its exports. In 1926 an export peak was reached with 1,936 tons (including at least 330 tons of plantation rubber - Ceará - from the Ubangi area), valued at 24 million francs (1, pp. 192-193). But the rubber exported from 1936 to 1938 averaged less than 1,100 tons in volume and less than 4 million francs in value. The wanton destruction of rubber vines by natives gathering rubber for the big concession companies caused the Government to require that rubber trees be planted in proportion to the amount of rubber collected. This provision, however, remained a dead letter, and no plantations of value were established in this way until about 1920, when the Compagnie Forestière Sangha-Oubangui began to develop Ceará plantations in earnest. In 1935 officials estimated that in 10 years the exportation of this cultivated rubber might attain 11,000 tons annually.⁵ If the war has not interrupted this development, it is obvious that wild rubber, once so prominent, is doomed soon to be overshadowed by the cultivated product.

⁴ The value of the French franc for 1936, 1937, and 1938, respectively, was 6.1141 cents, 4.0460 cents, and 2.8781 cents.

⁵ FULLERTON, HUGH S. POSSIBILITIES OF INCREASED PRODUCTION IN FRENCH EQUATORIAL AFRICA. U. S. Cons. Rpt. 32204, 4 pp. 1935. [Typewritten.]

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Palm kernels are gathered in considerable quantities. The oil palm (*Elaeis guineensis*) is abundant in Gabon and Middle Congo but not yet cultivated on a large scale in plantations, although the Government encourages their planting. The exportation of palm kernels is increasing slowly, from 11,000 tons in 1926 to 16,520 in 1938, when its value amounted to 15,662,000 francs. A greater increase may be noted for palm oil - from 799 tons in 1926 to 7,180 in 1938 (valued at 11,525,000 francs). This rapid increase in oil production is attributed to the initiative of the Government, which has been putting hand and small power presses at the disposal of the natives, thus avoiding the installation of crushing machinery in competitive plants operating without profit to those concerned.<sup>6</sup> Karite, or shea butter, is a product of the savanna, made from karite nuts by the natives of the Sudan, mostly for native use. Its exports - down the Benue as well as the Ubangi Rivers - are not yet of much significance. Like the oil palm, the karite tree can be planted in groves requiring very little attention, so that the amount of these oilseeds available for export depends largely on stimulating native initiative. Several other oil-producing seeds, such as the owala (*Pentaclethra macrophylla*) and the oba (*Irvingia gabonensis*), can be gathered wild and could be produced commercially once the demand was created (1, pp. 195-196). Castor-beans are gathered wild as well as cultivated.

Copal gum is another important forest product that could be much more fully exploited than it is now. The same is true of kola nuts, piassava, raffia, and wax. Of the last-named, 516 tons were exported in 1938, worth 4,795,000 francs; but it is estimated that the annual exportation could easily be raised to 2,200 tons. Labor and transportation facilities are still wholly inadequate for the full exploitation of the colony's enormous forest resources.

From the desert comes another natural product, for native trade mostly - dates from oases in Borkou.

Animal life is abundant in the colony. Before the introduction of a number of plants that now form native staple foods - bananas, yams, cassava, sweetpotatoes, oil palms, etc. - the central Africans lived on game and fish, supplemented by certain roots and the nuts of a few forest trees. If the chase or the fishing failed in an unfortunate season, famine drove them to migrate and even to eating earth. But generally there was plenty of animal food; and, today, no less the forests and savannas are a hunter's paradise (17, pp. 33-34; 10).

### Plantation Agriculture

In 1887 de Brazza, the great explorer who founded the colony and was its first governor, asked the French Government for an agricultural agent. The man sent him died in 1892 but by then had succeeded in introducing excellent stocks of coffee, cacao, clove, cinnamon, and various fruit trees, which served as a basis for Gabon's first plantations. In the same period Catholic missionaries began to cultivate several varieties of trees they had introduced on their own initiative. After 1892 several commercial plantations were established, chiefly of cacao. They were all European enterprises and limited to Gabon. An experiment station was established at Libreville, but its work was handicapped by inadequate appropriations. Yet progress

<sup>6</sup> LEVIS, DAVIS B. EXPANSION OF PRODUCTION OF PALM NUTS AND PALM OIL IN FRENCH EQUATORIAL AFRICA. U. S. Cons. Rpt. 25783, 3 pp. 1934. [Typewritten.]



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was encouraging until the law of 1899 was enacted favoring big concessions. Then all available capital was put into rubber-gathering enterprises instead of plantations. The requirement that concession companies restock the forest was generally ignored.

Thus a grand opportunity was missed; the Far East took it instead and established its world leadership in plantation rubber. Only a few of the Gabon companies in the coastal regions created plantations - and of cacao instead of rubber. One, near Libreville, was successful with a vanilla plantation. Later on other products, especially coffee, were attempted. Quite a few of these early plantations failed, however, (3); and it was not until the late twenties and during the past decade that coffee began to take its place next to cacao as a successful plantation crop. Plantation rubber has not developed according to expectations, but does very well where it is seriously attempted. Other crops, such as oil palms, castor-beans, sesameseed, cloves, bananas, and citrus fruits, are grown by European planters but not in quantities big enough to figure in export statistics.

Native Agriculture

Agriculture in the colony is still in its infancy. A sparse population, abundance of wild products, game, and fish, and the more lucrative employment in the gathering of these products are factors that retard agricultural development even where nature makes it easy and profitable, as in the savanna areas. In the dense forest region agriculture is a constant battle with rank vegetation, parasites, disease, and a heavy sultry atmosphere; while in the desert it is possible only near a well. But the middle belt, with a rainfall of from 18 to 40 inches a year, invites cultivation and has long been a producer of small grains, sorghum and millet, for native consumption. In the wetter savanna forest and in the forest proper, corn, cassava, bananas, yams, etc., are grown in small clearings. These do not require ripening for use and can be taken from rapidly growing plants, without much regard for the seasons, which impose such a strict rhythm of work on the farmer further north.

Rice is still a much appreciated novelty in the native diet; it grows well in humid areas but requires too much care for the easy-going Africans to cultivate it on a large scale. Potatoes have been successfully grown for over a decade.

Many kinds of gourds are grown, among them the pumpkin. Beans grow best north of the fifth degree north latitude; there are many varieties. For fat, the natives prefer palm oil, but also use peanuts and sesameseeds or shea butter, especially north of the seventh parallel (11, pp. 33-43).

Farm Labor

Generally, farming used to be a woman's occupation, the men only clearing the bush and breaking the ground; but the introduction of money crops has induced men to take up agricultural labor themselves. The strongest stimulus in this direction is the need for cash to pay taxes. If the native does not produce cash crops, he has to work for others to pay his taxes (18). Agricultural effort has an educational effect, and so to many natives the white man's tax becomes the cause of progress! Many still prefer the older types of occupation, however, and whole villages or even tribes may specialize in portage, paddling, or logging. Whether for food or for cash, native

agriculture is a family undertaking. The area under crops cannot be large, for all the work is done by hand; to have a big farm requires many wives, and it requires wealth to buy them.

Shifting cultivation

An outstanding feature of native agriculture is that of "bush fallowing," the use of a clearing for 3 or 4 years only and shifting to a new one when the soil is exhausted. This use of the land is bitterly criticized by many western authorities, but Shantz (18, 19) has pointed out that, while it is bad from the European point of view, it is perfectly suited to native conditions. Continuous cultivation requires special methods to keep off disease and maintain fertility; shifting cultivation allows nature to restore fertility and leads to erosion only by overgrazing. Of the latter there is no danger in the forest area, where tsetse flies make stock breeding impossible. As long as the native system of land tenure persists and the Government does not supply implements and fertilizer, Shantz says, "it is unsafe to force the native from his natural system." He gives the following illustration of that system (18, p. 29):

In the Congo and other heavily forested areas the trees are only partly removed, and the surface prepared for crops. There bananas and cassava are planted, then maize and a little later, upland rice. The two annual crops are harvested and replanted until the cassava has crowded them out. Then the cassava is gradually removed to make way for the bananas. These now form a dense clump, yielding fruit for food and drink and are taken until the native forest plants finally shut them out.

Shantz (18, pp. 29-31) describes the following excellent native practice:

In high grassland the grasses are cut and piled in a windrow. They are then covered with soil, thus producing ridges in which the grass lies, with ditches between. The grass is then ignited and gradually smolders through, leaving most of the valuable salts in the soil, the charcoal to improve the physical condition and drying out the surface soil to make it more tillable and easier to plant. It partially sterilizes the soil, making it more productive, and kills many harmful insects. To have allowed the grass to remain without burning would probably have resulted in having most of it eaten by termites and any nutritive or mineral value removed. Had it been decomposed by bacteria, the soil would have been depleted in nitrogen by these cellulose reducing organisms. It is difficult to imagine a practice which more nearly meets the requirements set up by soil chemistry, soil physics, and plant physiology.

But the firing of large areas for the purpose of rounding up game is a land-ruining practice that should be stopped at all costs.

The watered savanna belt (rainfall 10-60 inches annually) is the chief agricultural region, with several population centers of from 100 to 1,500 individuals cultivating their communal and family lands. The work is timed to the rainy season and takes about one hundred days per year. This regularity seems to have induced cultural stagnation; Labouret (9, p. 230) complains about the conservatism of "this rustic and hut-like civilization, centered in villages without initiative or boldness" for lack of urban stimulation.

Native Production of Commercial Crops

In many ways the native agriculture of French Equatorial Africa is identical with that of French West Africa. The same things are grown in the corresponding climatic belts; the same primitive methods and tools are used; in the absence of agricultural machinery, or even such a simple implement as the plow, the same shallow cultivation

with the hoe prevails; but as far as native growing of commercial crops is concerned, French Equatorial Africa is still far behind its older sister to the west.

The success of native cultivation of money crops in French West Africa and in British Gold Coast and Nigeria led to a belated effort in French Equatorial Africa to stimulate native production of suitable crops. Among these cotton takes first place. In the Ubangi area it is one of the few exportable commodities that will return a profit to the natives, in spite of the relatively high cost of production, the small return per acre (100 pounds), and the high transportation costs.⁷ Throughout Chad natives grow a coarse cotton for their own use, weaving it in narrow strips called gabaga, which serve as currency in local trade.

In the late twenties the Compagnie Cotonnière Équatoriale Française was formed and, with a capital of 15 million francs, began to install ginning mills in over a dozen subdivisions of Ubangi-Shari and Chad (Bouala, Doba, Lai, Fort Archambault, Koumra, Moïssala, Fort Sibut, and Dékoua in the former; Fort Lamy, Massakori, Bongor, Fianga, Léré, and Pala in the latter). The company did not start plantations of its own, but distributed seed to the natives, bought their cotton, ginned it, pressed it into bales, and shipped it to Europe - much by way of the Benue River, incidentally. Plans existed to develop thoroughly the "Mesopotamia of Chad," in the Léré region, providing it with canals and dikes for regular irrigation and even building a railroad from Garoua on the upper Benue to the Lagone River (1). Though these plans have not yet materialized, cotton production has increased rapidly, especially in the Ubangi area. Exports in 1936 totaled 7,387 tons, and in 1938 reached 10,884 tons, valued at 48,931,000 francs. In the summer of 1941 Britain agreed to buy all the salable cotton crop up to 22,000 tons.⁸

Four companies now divide the task of cotton promotion. A technical service was organized in 1929 for research and experimentation; through its efforts and with Government assistance collective demonstration fields were laid out, village by village. As soon as this practical instruction had borne fruit, these fields were replaced by family fields. In this way the native production of excellent cotton was increased year by year. In 1934 there were already 40 farms set aside for the wholesale production of selected seeds; and there were 30 ginning mills, within easy reach of growers. A small premium is given for cotton that has to be brought to the gin from fields over 9½ miles away. This portorage fee and the fair prices paid have produced encouraging results.

Coffee cultivation has also been encouraged by the Government, especially in Ubangi-Shari. Natives were advised to plant coffee trees near their villages. *Coffea arabica* grows wild in the gallery forests of this region, and *C. excelsa* was discovered growing wild in the highlands to the north as early as 1902. It was subsequently cultivated as a fine coffee in Indochina but neglected in its native land until the twenties. In 1927 a training farm was established at Bossembalé, northwest of Bangui, for 60 natives willing to learn all about coffee culture, which indicates the Government's desire to make up for lost time. Much of the coffee produced in this area is consumed locally and in the Congo Basin. The coffee grown for export is

⁷ TAFT, ORRAY, JR. COTTON GROWING IN FRENCH AFRICA. U. S. Cons. Rpt. 27782, 6 pp. 1941. [Typewritten.]

⁸ BRITAIN WILL BUY FRENCH PALM OIL. ECONOMIC AGREEMENT IS REACHED WITH FRENCH EQUATORIAL AFRICA ON OUTPUT OF PRODUCTS. N. Y. Jour. Com. 188 (14553): 6. June 7, 1941.

from plantations in Gabon and Middle Congo, and is mostly *kouilou*, *liberica*, and *robusta* (1). Here too, however, the Government seeks to develop native family cultivation of coffee and distributes plants for this purpose from its nursery at Oyem, near the eastern border of Spanish Guinea, as well as at Lastoursville, on the upper Ogowe. Here, too, much of the native product is as yet sold locally.⁹ What held back the full development of coffee cultivation in the colonies was, according to Labouret, the conservatism of French dealers who clung to their well-established Brazilian brands even though the colonies could furnish coffees as good or even better (9, p. 232).

Cacao is no longer recommended by the administration as a product for native cultivation. It has been grown successfully in Gabon since 1887; the first cacao plantation - started by a Dutch company - was established in 1889 and the first successful French one in 1892. From 1898 on Gabon saw a steady increase in the number of plantations and the volume of exports, which reached 110 tons in 1905 (2, pp. 4-6). Ten times more was produced after 1930, with Middle Congo plantations and native growers adding their share.

But the cacao tree requires more care than the coffee tree, and European plantations have suffered from diseases carried by poorly attended native groves. Besides, white planters fear a bad reputation for the colony's cacao if the native product, with many defective beans, is sold along with their own. In addition to this, experts realize that France, in the late thirties, was already importing nearly all its cacao from the colonies - about 55,000 tons annually - and that it would be unwise to expand in a commodity the world production of which already surpassed the needs of the world market. Thus the 1,100 tons annually exported from this colony may be considered its stable output in normal times, representing both European and native production.

Among fibers, dah (sunn, or Bengal hemp (*Crotalaria juncea*)), and sisal, raffia, and kapok should be mentioned as promising items for native production. Tobacco is widely cultivated, especially in the Alima region (Middle Congo) but is almost entirely marketed for local consumption. To a large extent this is also true of peanuts, which are grown mostly in the savanna belt. Lack of cheap transportation to Europe and Government emphasis on cotton growing have hampered the development of a sizable peanut crop for export. The same is true for other oilseeds, such as sesame and

TABLE 2.-Area in principal commercial crops in French Equatorial Africa, 1935-37

CROPS	1935	1936	1937
	1,000 acres	1,000 acres	1,000 acres
Cotton	309	349	457
Oil palms	198	210	235
Peanuts	86	97	111
Coffee	65	77	104
Cacao	37	45	48
Tobacco	15	17	19
Sesame	18	-	17
Castor-beans	(1)	-	2
Total	728	795	993

¹ Less than 500 acres.

Compiled from the International Yearbook of Agricultural Statistics, 1937-38 and 1938-39.

⁹ VAN SLAARS, SIDNEY. CULTIVATION OF COFFEE AT DJOUAH, FRENCH EQUATORIAL AFRICA. U. S. Cons. Rpt. 11309, 2 pp. 1939. [Typewritten.]

castor-beans, all of which grow well. High transportation costs have also caused the slow development of the tropical-fruit industry here, as compared with the rapid growth of banana cultivation, for instance, in French Guinea. Rice, recently introduced, is successfully grown in the uplands, for local consumption only.

The total area of the colony is 614 million acres, with an estimated area under food crops of 5 million acres, or less than 1 percent. There were nearly 1 million acres under commercial crops in 1937, or one-sixth of 1 percent of the total area.

Livestock

From the tenth parallel north to deep into the desert one finds Arab, Tuareg, and Fulani herdsmen. In the dry season these nomads trek south with their cattle for water and pasturage, mingling with the settled natives, whose northern limits correspond roughly to the fourteenth degree of latitude. They barter cattle, milk, butter, and dates from the Borkou oases for the cereals grown by the blacks. With the onset of the rainy season they move north again, to avoid the tsetse flies, which make the wet savanna dangerous for cattle. They are true pastoralists, living in tents of skins or camel's-hair cloth or in shelters made of mats or grasses, and their cattle represent the chief resource of Chad. In the absence of exact counts, the following estimate is given of this pastoral wealth as of 1930 (1):

Cattle	700,000 ¹⁰
Camels	24,000
Donkeys	50,000
Horses	45,000
Sheep and goats	1,500,000

The cattle weigh between 440 and 992 pounds, depending on the variety. Exportation of live cattle averages about 100,000 head annually - mostly to Nigeria and the Anglo-Egyptian Sudan. Serious ravages are caused periodically by the rinderpest; at times over half of the cattle have died of it (1, p. 202; 13). In 1920 a veterinary service was inaugurated, strengthened by various decrees in 1924, 1927, and 1929, but still wholly inadequate (11).

An important byproduct made by the Chad herdsmen is butter; some 450 tons a year are exported. Another important byproduct of Chad's cattle industry is hides, exports of which exceed 550 tons in some years. One trade, which depends on the whims of fashion, is that in ostrich feathers. Like the pastoralists, ostriches inhabit the grasslands north of the tenth degree.

In the equatorial region only small domestic animals, such as pigs, goats, and fowls, can be kept, except in the Bateke Highlands northwest of Brazzaville and wherever the tsetse fly does not occur. The Bantu natives have not yet learned to take good care of their animals and hence do not profit from them as they might.

INDUSTRY, TRADE, AND TRANSPORTATION

Mining

Apart from forestry, cotton ginning, and the usual variety of primitive native industries - weaving, pottery, basket-making, woodcraft, extraction of vegetable oils,

¹⁰ According to others the figure for cattle exceeds 1½ million.

etc. - there is only one important industry in French Equatorial Africa: mining. In the southern mountains of Middle Congo, extensive mineral resources are found. In 1905-6 the Compagnie Minière du Congo Français was founded to exploit copper mines at Mindouli and Koumboumba and to prospect and exploit all copper-bearing deposits in French Congo to the left of the Niari River. A private narrow-gage railway was built, 100 miles long, between the mines and Brazzaville, and has been used since May 1911. This company's mines yield primarily a high silver-bearing copper ore; but the colony possesses considerable mineral resources in addition to copper: iron, lead, zinc, tin, silver, gold, manganese, titanium, graphite, and diamonds.¹¹

Of minerals other than copper, gold has assumed considerable economic importance. Discovered in 1882 in the Kouilou-Niari Basin, it was not seriously mined until the thirties, when the deposits in Ubangi-Shari were opened up. In 1930, 143 pounds were exported; in 1938 exports totaled 2,584 pounds, valued at 35,852,000 francs. In 1940 all Provinces except Chad were shipping gold to France.¹²

The fuller development of the colony's mineral resources and industries hinges largely on suitable transportation facilities.

Transportation

Ports

Libreville, Port Gentil, and Pointe Noire are the chief ports, but the last alone is equipped to handle all sorts of ships and cargo and is connected by a railroad with its hinterland. In fact, Pointe Noire is the main gateway to the colony. The port works, begun at the completion of the Congo-Ocean Railway in 1934, include a breakwater more than a mile long, a walled wharf 2,500 feet long, with a depth alongside of 33 feet, which can accommodate the largest vessels, and a big pier between breakwater and wharf. In addition an inside jetty was built to protect the port against silting and 14,500 square yards of stone roads were laid, fully equipped with cranes, sheds, etc. The entire project was to be finished in 1940. The Government recruited native labor for the contractors.¹³

This deep-water port was possible because at Pointe Noire a submarine spur facilitated pier construction at a feasible distance from shore. Everywhere else (except at Pointe Longo) depths of 33 feet are only found 1 or 2 miles from shore, and a sandbar, deposited by the Benguella Current running northward, obstructs access to bays and rivers by deep-draught vessels. Hence surfboats have to be used for loading and unloading, which is not only inconvenient and costly but often dangerous (1).

The only portal for French Congo's heavy freight used to be Matadi, on the Congo estuary at the end of the Belgian railroad from Stanley Pool. Pointe Noire, connected with Brazzaville by an excellent new railroad, was intended to put an end to this dependence on a foreign railway and port, and even to attract Belgian Congo freight; for Matadi is known as a poor port, hampered by strong currents and eddies and less easily accessible than Pointe Noire.

¹¹ Petroleum has been found also, but is not yet exploited.

¹² A. C. Sedgwick, in the *New York Times* of October 29, 1941, gives the unverified figure of 2.9 tons as the present annual gold production of French Equatorial Africa.

¹³ LEVIS, DAVIS B. NEW DEEPWATER ATLANTIC PORT AT POINT-NOIRE (MIDDLE CONGO), FRENCH EQUATORIAL AFRICA. U. S. Cons. Rpt. 15538, 4 pp. 1934. [Typewritten.]


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## The Congo-Ocean Railway

The pride and the hope of the colony are centered in the combination of the seaport Pointe Noire and the 320 miles of railroad that connect it with Brazzaville, the capital on Stanley Pool, below which rapids make the Congo unnavigable. This Congo-Ocean Railway not only taps the whole Congo Basin, but runs through the heart of the richest mining country. State owned and operated, it is without capitalization; hence official statements showing annual earnings exceeding expenses give a false impression of its financial soundness. In the boom year 1937 it handled 682,324 tons of freight and 51,000 passengers (79,000 in 1938). In 1939 it operated with 36 steam locomotives, 3 Diesel-electric ones, 13 motor-rail cars, 44 passenger cars, 293 freight cars, and 47 service cars.

The French hope that this railroad will become an important outlet also for the Northern Rhodesian and Belgian (Katanga) mining areas, which previously depended largely on Portuguese outlets by rail or on the poor port of Matadi. They want to see Pointe Noire become "the Dakar of the South Atlantic."

## Rivers, Roads, and Air Lines

For centuries rivers and jungle tracks alone served for transportation in equatorial Africa. Today, rivers are still the chief channels of trade; the Congo-Ocean Railway is the only one in this colony, and the building of auto roads has only begun and is still entirely tributary to water transportation. About 4,750 miles of waterways are navigable for steamers during the whole or major part of the year, of which about 1,000 miles belong to the coastal system, 2,500 to the Congo Basin (fig. 2), and 1,250 to the Chad system. About four-fifths of the steamers plying these rivers operate in the Congo system. Many waterways can be used only in the rainy season. Service is maintained by private companies under contract with the State (11).

Ubangi-Shari has most of the auto roads laid out so far; Chad comes next. These two together claim 4,525 of the 5,000 miles of auto roads in the colony (12). Another 5,000 miles of "roads" consist merely of bush trails.

The most important routes are Bangui to Yaoundé (French Cameroon), Bangui to Fort Lamy (Chad), Bangui to Fort Archambault and from there north into eastern Chad, and Brazzaville to Ouesso in Middle Congo. In 1935 the Government began to do something about the bad road situation. Since June 3, 1932, no route had been declared open, as bridges and ferries were so poor that the administration refused to take responsibility for accidents. Simple dirt roads serve as highways even now, needing constant repairs in the rainy season. The maximum load for trucks was set at 3 tons, except on the Bangui-Archambault stretch, where it was 5 tons. This made transportation by truck very costly - it was estimated 40 percent could be saved if roads could carry heavy loads. So 7 million francs was set aside for road improvement and building, of which 1 million was used in 1935.<sup>14</sup> Feeder roads for the main waterways and the Congo-Ocean Railway were started, each 60 to 125 miles long; but the network needed to open up this big colony is still a long way from realization.

<sup>14</sup> SEVERE, MARC L. NEW TRANSPORTATION PROJECTS UNDERTAKEN AND ENVISAGED IN FRENCH EQUATORIAL AFRICA. U. S. Cons. Rpt. 35083, 8 pp. 1935. [Typewritten.]  
LEVIS, DAVIS B. HIGHWAY CONSTRUCTION IN FRENCH EQUATORIAL AFRICA. U. S. Cons. Rpt. 30615, 4 pp. 1935. [Typewritten.]



FIGURE 2.—Transportation map of the southern part of French Equatorial Africa. 1, Tropical rain forest; 2, marshlands; 3 - 5, rivers: 3, navigable for steamers throughout the year; 4, navigable for steamers during the rainy season; 5, not navigable for steamers; 6, falls and rapids; 7, railroads; 8, automobile roads; 9, projected roads; 10, political boundaries; 11, inter-colonial boundaries; 12, boundary of the Congo Basin.

Estimates of the number of automobiles and trucks at the beginning of 1939 are shown in table 3. About 30 percent of the passenger cars and 60 percent of the trucks were of American make.

TABLE 3.—Number and distribution of automobiles and trucks in French Equatorial Africa, 1939

| PROVINCE           | AUTOMOBILES | TRUCKS | TOTAL |
|--------------------|-------------|--------|-------|
| Chad .....         | 33          | 77     | 110   |
| Ubangi-Shari ..... | 247         | 464    | 711   |
| Middle Congo ..... | 507         | 545    | 1,052 |
| Gabon .....        | 142         | 160    | 302   |
| Total .....        | 929         | 1,246  | 2,175 |



Before the Free French regime, Brazzaville was already connected by regular air service (via Pointe Noire) with French West Africa, and (via Bangui) with Fort Lamy. From the latter, lines ran to French Sudan, connecting with Oran and Europe, and to Khartoum, connecting with the Cairo-South Africa line. From Bangui a line ran to Madagascar via the Belgian Katanga. Under Free French rule a new company, Air France Libre, has linked Brazzaville with Damascus, Syria; and recently a new service was started from the Free French capital to Lagos, Nigeria, terminal of the Pan-American Airways line from Brazil, and meeting point of airlines from England, Khartoum, and South Africa.<sup>15</sup> Many new airfields are being built throughout the colony.

### Depression, Recovery, and War Effects

In the typical depression year 1932 French Equatorial Africa went right on building up its economic machinery, though on a restricted scale. Hence the volume of both imports and exports increased over that of 1931, but lower prices caused a decrease in value. Imports increased in all but luxury goods, especially in construction materials, and in every Province except Chad. Exports from Gabon increased, from Ubangi Shari doubled, and from Middle Congo and Chad decreased somewhat (especially cattle exports from Chad to the adjoining British colonies). Gold and diamond exports shot up sharply. Trade with France was intensified, whereas that with other countries fell off a bit, as reflected in the number of ships calling at the colony's ports.<sup>16</sup> In 1933, the pound and dollar fell in value, and purchases from France were hit by the dumping of goods from Japan and Czechoslovakia, especially of foodstuffs. Exports of natural products and gold increased again. Thus the close connection of the colony's money economy with that of France was demonstrated. Native barter economy is fairly stable, however, and the population does fall back on it in troublous times. In the late thirties, Japan strengthened its position as a supplier, assuming third place.

The second world war brought the fall of France and the establishment of the Free French movement under General de Gaulle. On August 26, 1940, the Negro Governor of Chad proclaimed for his territory its adherence to the Free French cause; two days later Ubangi Shari, Middle Congo, and the mandated territory of Cameroon also joined de Gaulle. Gabon was soon forced to follow. Brazzaville then became the capital of Free France in Africa, and Yaoundé in Free French Cameroon became the new recruiting depot of the Foreign Legion, the majority of whom are always French citizens. In the same month the British blockade was lifted in favor of Free French colonies, and since then their trade with the British Empire and the United States has grown rapidly, aided by improved air connections. Thus the rich resources of French Equatorial Africa were kept out of German hands and made to serve the Allied war effort.

The Government of the vast Free French Colonial Empire (which now covers an area of 1,330,000 square miles with a population of almost 6½ million) is in the hands of a Free French Council of Defense, established in October 1940 and officially recognized by the British Government on January 5, 1941. Shortly thereafter the British Government and the Free French Council of Defense entered into several important

<sup>15</sup> The African World, December 20, 1941.

<sup>16</sup> LEVIS, DAVIS B. COMMERCE AND MARITIME MOVEMENT OF FRENCH EQUATORIAL AFRICA IN 1932. U. S. Cons. Rpt. 69075, 3 pp. 1933. [Typewritten.]



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agreements. The rate of exchange between the colonial franc and the pound sterling was fixed at the old parity existing before the fall of France.¹⁷ The British Government undertook to purchase the total output of palm kernels, palm oil, peanuts, and sesameseed (beniseed) of French Equatorial Africa, a considerable portion of its coffee crop, and very large quantities of timber, and to insure the sale of the commercially salable cotton crop up to 22,000 tons.¹⁸ The agreement operated retroactively from October 1, 1940, and was renewed after its expiration on September 30, 1941. Shipping shortage has probably interfered with British good intentions, for on July 31, 1941, there were still 2,697 tons of palm kernel stocks in the colony, only 4,516 tons having been exported the first 7 months, whereas normally in 12 months the exports amount to 12,125 tons or more. Of palm oil, 2,320 tons had been exported and 2,497 tons remained in stock. The British paid 1,950 francs per ton to natives at Pointe Noire, on the basis of £16 7s. 6d. a ton delivered in London. For palm kernels they paid 950 francs at Pointe Noire (£11 10s. in London).¹⁹

Recent visitors to Central Africa state that this formerly sleepy colony has become a beehive of Free French activity. This is probably more noticeable in the few centers of administrative, aerial, and military significance than in the back country. With Dakar and French West Africa under German influence and the Mediterranean closed for merchant shipping, French Equatorial Africa has become an important transit country for Allied personnel and materials on their way to Egypt. Bangui is said to have increased its white population sixfold and other centers even more in consequence of these wartime activities.²⁰

Foreign Trade

Table 4 gives an indication of the volume and development of exports from French Equatorial Africa. In 1936, a fairly normal year for the colony, the value of exports was distributed as follows: Gabon 56.2 percent, Ubangi-Shari 20.9 percent, Middle Congo 12.4 percent, and Chad 10.5 percent.²¹

Imports exceed exports in value, as can be expected of a country that is still building up its production and transportation equipment. Table 5 shows the importance of petroleum products, machinery and metal manufactures, and cotton piece goods in the list of imports. Prior to the second world war, the chief suppliers of imports into French Equatorial Africa were France, the United States, Belgium and its colonies, the British Empire, and Germany. The chief customers for exports from French Equatorial Africa were France, Belgium, Germany, and the Netherlands (see table 6).

¹⁷ FREE FRENCH COLONIES RALLY TO SUPPORT OF DE GAULLE. *Christian Sci. Monit.*, Jan. 2, 1942, p. 2. The rate agreed on is 176.625 francs per pound sterling (\$4.035).

¹⁸ [GT. BRIT.] SECRETARY OF STATE FOR FOREIGN AFFAIRS. EXCHANGE OF LETTERS BETWEEN THE SECRETARY OF STATE FOR FOREIGN AFFAIRS AND GENERAL DE GAULLE CONCERNING COMMERCIAL AND ECONOMIC RELATIONS BETWEEN THE UNITED KINGDOM AND FRENCH EQUATORIAL AFRICA. 7 pp. May 20, 1941. London.

¹⁹ MALLON, PATRICK. PALM OIL AND KERNEL SITUATION IN THE FRENCH CAMEROONS AND FRENCH EQUATORIAL AFRICA. U. S. Cons. Rpt. 27085, 3 pp. 1941. [Typewritten.]

²⁰ SEDGWICK, A. C. See reference cited in footnote 14.

²¹ These figures must not be taken too literally, since they are based on customs records. Goods that are declared in one Province may have originated in another. Much trade with adjoining colonies escapes customs registration, so that the official figures represent the minimum trade movement rather than all of it.

TABLE 4.—Exports from French Equatorial Africa, 1925, 1936, 1938

COMMODITY	QUANTITY			VALUE ¹		
	1925	1936	1938	1925	1936	1938
	Short tons	Short tons	Short tons	1,000 francs	1,000 francs	1,000 francs
Live animals	(2) :	3 70 :	3 91 :	2,639 :	2,890 :	7,181
Raw hides	(2) :	504 :	378 :	(2) :	2,702 :	2,549
Fresh butter	(2) :	475 :	522 :	(2) :	3,080 :	2,254
Palm kernels	10,139 :	13,814 :	16,520 :	8,761 :	5,813 :	15,662
Palm oil	595 :	5,907 :	7,180 :	836 :	5,029 :	11,525
Cacao beans	183 :	890 :	1,147 :	478 :	2,741 :	2,638
Coffee beans	100 :	1,477 :	2,466 :	375 :	5,939 :	10,493
Cotton	(2) :	7,392 :	10,884 :	(2) :	28,725 :	48,931
Rubber	1,957 :	849 :	1,142 :	6,803 :	1,605 :	5,179
Okoume wood	223,036 :	316,360 :	255,734 :	21,792 :	80,491 :	87,596
Other woods	17,263 :	27,163 :	48,205 :	4,384 :	9,247 :	13,303
Wax	(2) :	396 :	516 :	(2) :	2,004 :	4,795
Gold	0 :	4 1,215 :	4 2,584 :	0 :	8,173 :	35,852
Total values (including all other items)	:	:	:	:	:	:
	:	:	:	66,870 :	161,761 :	264,100

¹ The value of the French franc for 1925, 1936, and 1938, respectively, was 4.7671 cents, 6.1141 cents, and 2.8781 cents.

² Exports for 1925 not reported.

³ 1,000 head.

⁴ Pounds.

Compiled from records of the French Direction de la Statistique Générale et de la Documentation (4, p. 295); and French Equatorial Africa, U. S. Dept. Com. Spec. Cir. No. 117, 1928. 1938 is the last year for which complete figures are available.

TABLE 5.—Imports into French Equatorial Africa, 1936-38

COMMODITY	UNIT	QUANTITY			VALUE ¹ (THOUSANDS OF FRANCS)		
		1936	1937	1938	1936	1937	1938
Live animals	Head :	6,224 :	6,321 :	8,646 :	2,221 :	2,073 :	2,638
Conserved meats	Short ton:	257 :	268 :	103 :	1,060 :	1,894 :	1,117
Dried fish	Short ton:	2,158 :	2,522 :	2,164 :	3,854 :	5,026 :	6,792
Wheat flour	Short ton:	1,285 :	939 :	903 :	1,758 :	1,834 :	2,146
Rice	Short ton:	4,250 :	3,845 :	3,123 :	3,309 :	4,413 :	4,880
Sugar	Short ton:	806 :	1,064 :	1,127 :	1,469 :	2,344 :	2,971
Tobacco manufactures	Short ton:	98 :	139 :	137 :	1,971 :	3,010 :	3,705
Wines and liquors	Gallon :	727,737 :	685,970 :	605,738 :	6,268 :	8,946 :	8,725
Beer	Gallon :	147,175 :	179,431 :	143,661 :	2,230 :	3,593 :	3,825
Distilled beverages	Gallon :	13,896 :	21,372 :	15,666 :	1,956 :	2,739 :	3,147
Cement	Short ton:	12,659 :	13,015 :	11,744 :	4,269 :	3,530 :	3,241
Coal	Short ton:	15,627 :	22,561 :	11,651 :	5,379 :	5,750 :	4,499
Petroleum, gasolines, and mineral oils	Short ton:	12,520 :	12,121 :	14,232 :	11,024 :	16,214 :	29,521
Iron, steel, and steel plates and rails	Short ton:	3,250 :	4,140 :	2,445 :	2,963 :	5,273 :	5,392
Marine or rock salt	Short ton:	3,980 :	6,144 :	5,863 :	1,367 :	2,239 :	1,782
Cotton tissues	Short ton:	1,365 :	1,455 :	1,558 :	17,372 :	28,766 :	38,956
Clothing	Short ton:	261 :	316 :	258 :	5,208 :	9,044 :	10,522
Paper and paper products	Short ton:	246 :	279 :	315 :	1,929 :	2,566 :	3,392
Machinery	Short ton:	1,220 :	1,117 :	1,109 :	16,329 :	16,095 :	18,875
Other metal products	Short ton:	3,957 :	5,100 :	4,117 :	13,417 :	21,710 :	26,636
Automobiles and parts	Short ton:	625 :	769 :	894 :	5,840 :	10,083 :	14,231
Railroad materials	Short ton:	1,117 :	379 :	204 :	6,531 :	1,234 :	738
Vessels (river and sea)	Tonnage :	769 :	2,594 :	893 :	1,563 :	3,375 :	4,059
Rubber products	Short ton:	148 :	265 :	298 :	1,887 :	3,731 :	4,773
Totals, including merchandise not listed above	:	:	:	:	178,420 :	239,985 :	295,756

¹ The value of the French franc for 1936, 1937, and 1938, respectively, was 6.1141 cents, 4.0460 cents, and 2.8781 cents.

Direction de la Statistique Générale et de la Documentation (4, p. 295).

TABLE 6.—Imports and exports of French Equatorial Africa, by country of origin and destination, in thousands of francs,¹ 1935-38

COUNTRY OF ORIGIN	IMPORTS				COUNTRY OF DESTINATION	EXPORTS			
	1935	1936	1937	1938		1935	1936	1937	1938
France	77,950:	80,999:	83,854:	104,410:	France	127,438:	117,961:	165,733:	183,722
French colonies:	7,207:	7,212:	7,593:	8,961:	French	:	:	:	:
Belgium	11,823:	13,639:	23,386:	22,099:	colonies	2,328:	3,142:	5,078:	3,831
Belgian Congo ..	5,548:	7,459:	7,085:	9,484:	Belgium	14,522:	15,439:	28,817:	33,572
Germany	5,615:	4,666:	10,660:	11,277:	Belgian	:	:	:	:
Great Britain ..	13,387:	12,115:	16,442:	14,873:	Congo	1,857:	1,772:	3,825:	3,501
English	:	:	:	:	Germany	6,191:	7,480:	22,815:	11,434
colonies	9,628:	10,574:	11,359:	13,208:	English	:	:	:	:
United States ..	12,838:	13,200:	29,959:	42,572:	colonies	9,603:	7,141:	9,231:	11,092
Portugal and ..	:	:	:	:	Netherlands ...	6,483:	5,951:	14,772:	7,822
colonies	7,940:	6,794:	9,386:	9,589:	Italy	4,222:	610:	2,233:	791
Other countries:	16,596:	21,762:	40,261:	59,283:	Other countries:	1,402:	2,265:	3,848:	8,335
Total	168,532:	178,420:	239,985:	295,756:	Total	174,046:	161,761:	256,352:	264,100
	:	:	:	:		:	:	:	:

¹ The value of the French franc for 1935, 1936, 1937, and 1938, respectively, was 6.6013 cents, 6.1141 cents, 4.0460 cents, and 2.8781 cents.

Direction de la Statistique Générale et de la Documentation (4, p. 295).

GOVERNMENT POLICIES AND ASSISTANCE

Until French Equatorial Africa became Free French Territory in August 1940, its administrative policies were determined in France. From 1920 on, when Sarraut became Minister of Colonies, France followed his lead in regard to most of its colonial possessions. His theory (16) for the full development of all colonial resources struck a snag, however, in French Equatorial Africa. Until the late twenties the big concessions in the forest region held back plantations and native cultivation of money crops by a virtual monopoly on land and labor. After that it was very difficult - in the midst of a world depression and the doldrums of pre-war uncertainty - to attract capital to a country that had long been advertised as a grave of investments and men, a land of sleeping sickness, isolation, and lost hopes. Thus the task of making a start toward the economic mobilization of the colony remained with the local government. The latter faced two serious obstacles: indifference and therefore poor financial support on the part of the home government, and an extreme scarcity of labor in the colony itself.

There are whole areas - apart from the desert proper - which have been practically depopulated (for example, 66,000 square miles in northeast Ubangi-Shari) by the ravages of nineteenth century slave raiding, epidemics, and wars. Furthermore, to provide a wild country with the equipment to produce and transport its goods requires money. The intensified economic nationalism of France in the late twenties, which sought to "throw the stranger out" of its market and to obtain raw materials as much as possible from its own colonies, finally caused a loosening of the French purse strings for the first big undertaking in its equatorial realm: the Congo-Ocean Railway and its deep-water port of Pointe Noire. A 45-million-franc subsidy was voted in 1930 for carrying out a public works program in the colony, and the next year 800 million was budgeted for this purpose (9). Thus, in spite of the depression, the building up of the colony's equipment went on during the thirties. But producers are the basis of a country's wealth. Unable to attract a sizable white planter class, the Government decided at last to stimulate native cultivation of commercial crops.


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The Sudan belt is good cotton country. France wanted to free itself from dependence on American and Indian cotton. So the Sudan natives were to grow cotton for France. This program was energetically pushed, and natives were "persuaded" to sow cotton under the watchful eyes of gendarmes, although forced labor for all but public works had been officially renounced. While French colonial reports have always been secret, those of League of Nations' mandates are public. This difference in reporting has interesting economic consequences. For instance, in adjoining Cameroon, where the natives are really free to choose their money crops (since compulsion is forbidden by mandate charter), they grow peanuts instead of cotton, simply because peanuts are about twice as profitable (21). This illustrates the colonial policy of old France: direct rule (even where the fiction of native chieftainship is maintained, for chiefs are appointed and deposed at will), and "association" of the native to French needs and French views, which in practice means submergence of his own interests in those of the ruling country.

This basic policy determined all the details of Government assistance and control. Politically it was evident in the centralized control of this whole vast territory from its capital, Brazzaville. The four Provinces were merely administrative subdivisions without separate budgets or independent programs. For the whole of French Equatorial Africa there was only one delegate (white) to the Supreme Colonial Council in France (1).

Like France with its Departments, the colony was divided into 20 Departments spread over the 4 Provinces (called Regions since 1934); Department heads carried out the orders of the Governor General and transmitted them to minor officials in charge of subdivisions in each Department. In less accessible parts of the subdivisions, "posts of administrative control" were created, each with its "chief of post," who supervised his district's native administration and reported on all matters to the subdivision chief. At each post a detachment of regional guards was stationed. Obviously the statesmen of old France did not count much on native initiative or care much for the preservation of native culture and organization. To civilize a native meant, to them, to make a Frenchman out of him, or at least someone who served French interests. Labouret (9) enthusiastically proposed the following revealing motto: "To rule, protect, and teach - for service." The native was looked on as a child, who for his own good and that of France must be made obedient and industrious.

Economically this policy failed to touch the individual springs of action. In spite of all the Government's efforts, the number of native producers in French Equatorial Africa was reported, in 1939, to be decreasing, while in French Cameroon across the border it was rising steadily (21, pp. 212-213). Not until 1936 was a school founded in Brazzaville for the training of native agricultural demonstrators. At this time the native cooperatives (Provident Societies) of two French Cameroon Provinces alone were employing 100 such demonstrators on their own initiative and at their own expense. In spite of the splendid record of these of Provident Societies there and in French-West Africa, none had been formed in French Equatorial Africa up to the middle of 1939. In that year the colonial development policy of the French Government was described as falling within two systems: first, a system of bonuses on exports, and, second, one of refunds to colonial governments of sums obtained from customs increases on products entering France, or from special taxes. In French Equatorial Africa these measures affected rubber, coffee, cotton, oilseeds and oils, and cassava.

Other agricultural-aid measures were the Agricultural Credit fund (in all of 1938 only 180,000 francs were granted in loans) and special subsidies or loans by France to the colony "to aid local native production," such as the 20 million francs authorized in February 1931, chiefly for cotton promotion. Loans to the colony were to be liquidated within 75 years. By these efforts the Government succeeded in making French Equatorial Africa first among French cotton-producing colonies.

Aside from the old experiment station at Libreville, the colony had only four cotton selection stations and a small experiment station for coffee. The agricultural, veterinary, and forestry services were reorganized in 1936 to advise local authorities and not merely the central Government; but their efficiency was hampered by too little personnel. The understaffing of this colony was one of its perennial problems, and in the depth of the depression forced economies made it so serious that the French began training natives to fill as many subordinate posts as possible (8, p. 241).

In education French Equatorial Africa is again behind French West Africa. Before the war there was only one vocational school, at Fort Lamy. Apprenticeship with the Public Works Department provided some with technical training. For fuller instruction, pupils had to go to the technical and professional schools of French West Africa - an economy measure decided on in 1934 (8). Only primary education was provided, very elementary in the village schools, somewhat fuller in the urban ones headed by Europeans. Emphasis was on French and on practical subjects (11).

Financially, the colony has generally been a liability. In 1937, a boom year, expenditures amounted to 198 million francs, of which over 40 percent was for debt charges, 25 percent for the administrative and financial services, 6 percent for public works, and 9½ percent for social services, chiefly medical and educational. The main sources of revenue were the head tax (39 million), import and export duties (48 million), and forest revenues (5 million). A subsidy of 79 million was needed to balance the books. These figures were exclusive of the railway budget and the special-loan budget, which finances big capital developments, such as the harbor works at Pointe Noire and the construction of the Congo-Ocean Railway (8). The Government hoped that the colony, once fully equipped for production, would amply repay their financial sacrifices, but not all Frenchmen believed it would.

French Equatorial Africa, with the exception of a part of Gabon, is pledged to the maintenance of an open-door policy by the Act of Berlin (the Congo-Ocean Treaty of 1885) and by later international conventions. All trading countries, therefore, had to pay the same tariff rates; but France and Algeria admitted some of the most important exports of this colony free of duty (7). Sometimes, however, the economic nationalism of the mother country has hampered the colony, as in 1936 when export quotas reduced shipments of okoume wood, the chief wealth of Gabon, by 30 percent in less than 7 months.<sup>22</sup> Practically all of the wood exported went to France and the Netherlands for final shipment to Germany, which country otherwise would have bought direct at lower prices. It was a typical instance of the subordination of colonial interests to those of France. In October 1936 France formally renounced the nondiscrimination clauses of the Anglo-French Conventions of 1898-99 - another step on the

<sup>22</sup> LEVIS, DAVIS B. FOREIGN TRADE OF EQUATORIAL FRENCH AFRICA, 1935. U. S. Cons. Rpt. 70851, 19 pp. 1936. [Typewritten.]



road of "imperial autarchy" on which it had embarked and which Labouret acknowledged to be "a struggle full of painful pitfalls." France saw the role of the colony as one of developing an economy complementary to French industry and agriculture, as an integral part of the imperial organism. Thus "France overseas" became an indispensable adjunct to the "metropole" (7, p. 247).

It is probable that the Free French Government now in control of the colony, having no traffic at all with Vichy France, is pursuing an altogether different policy, dictated by the needs of the war and by a clearer perception of the country's possibilities. If so, one can understand the statement of an American who recently visited the colony that it had "made more progress in 1 year under Free France than in 20 years before."

### SUMMARY

French Equatorial Africa is a country of immense natural resources, most of which have hardly been tapped. Chief among these are forest products and valuable minerals. Its agriculture is still relatively insignificant. Barely 1 percent of its area is utilized for growing native food crops and only one-sixth of 1 percent for export crops. The colony is handicapped by lack of adequate transportation, by sleeping sickness, by a climate in which few Europeans can work, and by a native population so sparse and so primitive that it is almost impossible to provide the manual labor needed for its development. In the first half century of French rule over this colony, monopolistic exploitation of forest resources by big concessionaires, indifference on the part of the French people and their Government, and a reputation as a grave of men and investments held back its economic evolution. Since 1930 there has been a vast improvement, however; the French began to equip their long-neglected colony with the transportation facilities so badly needed and to induce natives to grow export crops, particularly cotton. The exploitation of its mineral and forest resources was regulated by law, and it looked as if the colony were due for a slow but steady development. The colonial philosophy of France, however, insisted on a development of the colony only along such lines as were considered complementary to French economy. In the 1930's this did not always work to the advantage of the colony.

Under Free French administration since August 1940, however, French Equatorial Africa, limited now to an economy dictated by the needs of war, has taken a new lease on life. The British Empire has replaced France as the colony's chief customer and provider. Its dependence upon metropolitan France has ceased, for the time being. If properly managed, it may yet become an important producer of oilseeds and fibers, as well as of several strategic minerals.

That big changes are taking place may be inferred from de Gaulle's own words in a recent address (6):

While the war is thus materialising the theoretical unity of Africa by discovering and increasing the means of communication, it is also causing elements of economic unity to appear. The African lands, which are at present more or less separated from the mother-countries, find that they are to a large extent complementary to one another. Thus, for instance, a thousand new links of exchange are being formed between Free French Africa, Nigeria, the Belgian Congo, South Africa, and Angola. \* \* \*

Through the Governors' conferences, the missions for study, purchase and sale, the revisions of tariffs and customs duties, one can see the outline, in virtue of the war, of a true African economic life which could certainly never have been created by normal circumstances.



## LITERATURE CITED

- (1) BRUEL, GEORGES.  
1930. L'AFRIQUE ÉQUATORIALE FRANÇAISE. 256 pp., illus. Paris. [Rev. and enl., 1935.]
- (2) CHALOT, CH., and LUC, M.  
1906. LE CACAOTIER AU CONGO FRANÇAIS. 58 pp., illus. Paris.
- (3) DU VIVIER DE STREEL, E.  
1917. LA CULTURE EN AFRIQUE ÉQUATORIALE FRANÇAISE. Union Colon. Franç. Étude, 49 pp. Paris.
- (4) [FRANCE] DIRECTION DE LA STATISTIQUE GÉNÉRALE ET DE LA DOCUMENTATION.  
1938. ANNUAIRE STATISTIQUE. V. 54, 301 pp. Paris.
- (5) [FRANCE] DIRECTION, RÉDACTION ET ADMINISTRATION.  
1938. CONSTATATION DES DROITS FONCIERS INDIGÈNES EN AFRIQUE ÉQUATORIALE FRANÇAISE. Jour. Off. de la Repub. Franç. Lois et Décrets 70 (36): 1780-1781.
- (6) GAULLE, C. DE.  
1941. GENERAL DE GAULLE ON THE NEW AFRICA. WAR AS AN IMPETUS TO DEVELOPMENT. ALLIED COLLABORATION AFTER VICTORY. African World 157: 69.
- (7) HAIGHT, FRANK ARNOLD.  
1941. A HISTORY OF FRENCH COMMERCIAL POLICIES. 285 pp. New York.
- (8) HAILEY, LORD.  
1938. AN AFRICAN SURVEY: A STUDY OF PROBLEMS ARISING IN AFRICA SOUTH OF THE SAHARA. 1837 pp., illus. London.
- (9) LABOURET, M.  
1935. L'AFRIQUE OCCIDENTALE ET L'AFRIQUE ÉQUATORIALE FRANÇAISES. Inst. Natl. Agron. Paris, Ann. 27: 220-223.
- (10) LAVAUDEN, LOUIS.  
1934. LES GRANDS ANIMAUX DE CHASSE DE L'AFRIQUE FRANÇAISE. Faune des Colon. Franç. 5: [323]-495, illus.
- (11) MAIGRET, JULIEN.  
1931. AFRIQUE ÉQUATORIALE FRANÇAISE. 220 pp., illus. Paris.
- (12) MAURETTE, FERNAND.  
1938. AFRIQUE ÉQUATORIALE, ORIENTALE ET AUSTRALE. Géog. Univ. v. 12, 398 pp., illus.
- (13) PANISSET, L.  
1921. LA PESTE BOVINE. Agron. Colon. 6: [165]-173, illus.
- (14) PIM, ALAN.  
1940. THE FINANCIAL AND ECONOMIC HISTORY OF THE AFRICAN TROPICAL TERRITORIES. 234 pp., illus. London.
- (15) ROEST, PIETER K.  
1941. FRENCH WEST AFRICA. Foreign Agr. 5: 353-396, illus.
- (16) SARRAUT, ALBERT.  
1923. LA MISE EN VALEUR DES COLONIES FRANÇAISES. 656 pp., illus. Paris.
- (17) SCHWEITZER, ALBERT.  
1939. AFRICAN NOTEBOOK. Translated by C. E. B. Russell. 144 pp., illus. New York.
- (18) SHANTZ, H. L.  
1940. AGRICULTURAL REGIONS OF AFRICA. PART I--BASIC FACTORS. Econ. Geog. 16: [1]-47, [122]-161, illus.
- (19) ————  
1940-41. AGRICULTURAL REGIONS OF AFRICA. PART II--VEGETATION AND POTENTIAL PRODUCTIVITY OF THE LAND. Econ. Geog. 16: [341]-389; 17: [218]-249, [351]-379, illus.
- (20) ———— and MARBUT, C. F.  
1923. THE VEGETATION AND SOILS OF AFRICA. Amer. Geog. Soc. Res. Ser. No. 13, 263 pp., illus.
- (21) STEER, G. L.  
1939. JUDGMENT ON GERMAN AFRICA. 351 pp., illus. London.

## WAR PLACES NEW BURDEN ON EASTERN RUSSIAN AGRICULTURE . . . . .

By Lazar Volin\*

*The Nazi invasion tends to enhance the agricultural importance of eastern Russia in the war potential of the Soviet Union. The natural limitations on farming in this area are serious, and parts of it, notably the far east and Turkestan, are deficit with respect to foodstuffs. Nevertheless, eastern Russia, considered as a whole, is a food-surplus-producing area. Its most important deficiency is in sugar. The vital grain surplus, when requirements of the far east and other deficit eastern regions are taken into account, is normally small compared with that of the southern and central surplus regions occupied or threatened by the Nazis. However, barring unfavorable weather, a moderate increase of grain production is feasible in eastern Russia under conditions of mechanized farming.*

The Nazi invasion of western and southern European Russia endows with new importance the vast eastern hinterland in the Russian war effort. This is signaled by the temporary removal of the capital to Kuibyshev (formerly Samara) on the Volga, by the reported evacuation of factories from the war zone eastward, and by the attention focused on the industrial resources of eastern Russia. By the same token the agricultural resources of the latter have acquired increased importance because of the temporary loss or disruption of production in some of the leading Russian food-surplus-producing districts. A bird's-eye view of agricultural conditions in this eastern area therefore appears timely.

### GENERAL CHARACTERISTICS

We are dealing here with an enormous territory, extending from the Caspian Sea and the lower and middle Volga Basin eastward to the Pacific, including, therefore, a strip of European Russia and all Asiatic Russia. Eastern Russia, as we shall call this whole territory, comprises roughly more than three-fourths of the area but contains only a third of the population of the Soviet Union. The great bulk of this vast area is east of the Volga and its tributary Kama.

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It has been said with good reason that, although the Ural Mountains constitute the accepted geographical line of demarcation between European and Asiatic Russia, the Volga is actually the cultural boundary between Europe and Asia, between the West and the East, between the old and the new Russia. But the Volga may also be considered a significant agricultural boundary line, since farming conditions in the territory east of that river differ in many essential respects from those in the regions west of it.



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FIGURE 1.—Soviet Union by Administrative Divisions.

The famous Russian historian V. O. Kluchevsky observed that Russia's history is a "history of a country in the process of colonization." Nowhere is this thesis illustrated better than in eastern Russia, since its settlement has been relatively recent and beyond the Urals has in fact continued in our own day, resembling in many respects the settlement of the American West. A highly important consequence of the recent settlement and sparse population of eastern Russia is the absence of that pressure on land which was characteristic of the much more densely populated regions, particularly the central black soil area and the Ukraine. It is reflected in larger peasant landholdings in the east under both the former individual and the present collective systems. Thus, in the central black soil Provinces (Orel, Kursk, Tambov, and Voronezh) the average area per peasant household on a collective farm in 1938 was



25 to 27 acres and in the Ukraine, 22 acres. But in the recently dissolved German Republic of Volga (which is mostly east of that river) it was nearly 82 acres; farther east in the Orenburg Province, recently renamed Chkalov, it was 96; in the Chelyabinsk Province, 99; and in western Siberia, 116 to 121 acres. The increase in the holdings in Russia from west to east parallels in general a similar increase in the United States from east to west.

However, the eastern Russian farmer, though better provided with land, is confronted with harsher climatic conditions, which make a larger amount of land necessary to support the family. Eastward the climate becomes more continental in character, with long, cold winters and scant precipitation as the gentle winds from the Atlantic give way to the icy breezes from the Arctic and the parching winds from the central Asiatic deserts. Only in the far east near the Pacific is a moderating influence on the climate exerted by the ocean.

In spite of the severe winter, the relatively warm summer permits the extension of agriculture far to the north, particularly west of the Ural Mountains in European Russia.<sup>1</sup> East of the Urals in Siberia, however, the northern border line of the agricultural zone as a rule pushes farther south, though again in spots crops are grown far north. In general, climatic factors and, closely associated with them, soil conditions confine agriculture in western and central Siberia largely to a relatively narrow belt of forest-steppe and steppe lands. It hugs the trans-Siberian railroad lines and is hemmed in between the vast forests (taiga) and marshes on the north and the semi-desert and mountains on the south. Farther east, in the mountainous country near the huge fresh-water Lake Baikal and in the Amur and Pacific regions, there are only scattered sections of land suitable for farming. There is a distinct agricultural region in the southern part of Asiatic Russia, in the Turkestan beyond the Caspian Sea, where agriculture is of an ancient oasis character, based primarily on irrigation.

Climatic conditions tend not only to restrict the agricultural area as a whole but also to limit the selection of crops. Winter crops, which play so important a part in Russian agriculture west of the Volga Basin, are a case in point. Thus in the Ukraine in 1938 winter grains constituted 37 percent of the crop area; in the Krasnodar Province (Kuban) of North Caucasus, 40 percent; in the central black soil Provinces, over 30 percent. But even the hardier rye, to say nothing of winter wheat, becomes less and less important east of the Volga. In the Bashkir Republic winter wheat occupied about 24 percent of the crop area; in Orenburg Province, 16 percent, in the more eastern Chelyabinsk, only 11 percent; and still farther east in Altai Province, less than 3 percent. Some increase of the winter-grain area since 1938 in these regions was fostered by the Government, but the broad picture probably remains substantially unchanged.

The small proportion or absence of winter crops, with the consequent predominance of spring crops, has serious disadvantages. For one thing, it greatly increases the fieldwork load in the spring and the peak during the harvesting season. For

<sup>1</sup> The summers appear to be warmer in eastern Russia than in comparable or even more southern latitudes of North America. Thus the average July temperatures in Orenburg (Ural) and Winnipeg, Canada, are 71.6° and 66.4° F., respectively; those of Omsk (West Siberia) and Edmonton, Canada, are 66.7° and 61.1°, respectively. Both points in Canada are located somewhat south of those in Russia.

another, by restriction to spring crops the farmer is deprived of valuable insurance crops in case of a drought, especially in view of the greater drought-resistant qualities of winter as compared with early spring grains. This is particularly important in the Russian eastern regions where agriculture is carried on to so large an extent under semiarid conditions and where concentration on spring crops therefore increases the hazards of farming.

Aridity, then, is another serious limitation that climate imposes on agricultural activity in eastern Russia. Practically the whole of the middle and lower Volga Basins and the agricultural belts of Kazakhstan and parts of the Ural area are in a zone of low (16 inches and less per annum) and erratic precipitation and high evaporation during the vegetation period. Scorching, dry winds from the central Asiatic desert, so-called *sukhovei*, which play havoc with the growing crops, are also frequent. As a result, devastating droughts bringing crop failure in their wake are common.

The contrast in this respect between the east and the south of Russia is striking. Semiarid conditions also prevail in a large section of the south (southern steppe Ukraine), but there this unfavorable climatic factor is offset to a considerable extent by the cropping system, in which winter grain, chiefly winter wheat, plays a leading role. On the other hand, in the eastern semiarid area the predominance of early spring grains, especially spring wheat, makes agriculture particularly vulnerable to recurrent droughts and the crop outturn highly uncertain.<sup>2</sup> This ever-present specter of drought constitutes the most serious weakness of eastern agriculture. It is particularly fraught with danger when, as during the present war period, much greater reliance must be placed on the contribution of the eastern regions to the national food supply and when a poor crop in the Volga area cannot be offset by a good crop in south and central Russia, so much of which is still occupied by the Nazis.

More stable yields prevail in the Siberian agricultural zone than in the Volga-Kazakhstan. But because of a later season rainfall often interferes with harvest, making combine operations difficult and requiring artificial drying of the grain. In the far east not only is lack of rainfall not a limiting factor but, on the contrary, excess moisture causes considerable damage to the grain. At the other extreme is Turkestan, the principal Russian cotton-growing area, where agriculture is for the most part impossible without irrigation.

## FARM ORGANIZATION

The pattern of farm organization does not differ in its basic principles in eastern Russia from that of the rest of the Soviet Union. Peasant agriculture here, too, has been collectivized and controlled by the Government; and collective farms, serviced with tractors and combines by machine-tractor stations, are the basic farm units.<sup>3</sup>

<sup>2</sup> It should be noted that the Government gave a great deal of attention during the last few years before the war to measures for combating droughts in the semiarid zone of eastern Russia by emphasizing better adaptation of the cropping system and farm practices to climatic conditions. Large-scale irrigation developments in the Volga area were also projected. For details see VOLIN, LAZAR. *EFFECTS OF THE DROUGHT AND PURGE ON THE AGRICULTURE OF THE SOVIET UNION*. *Foreign Agr.* 3: 175-196, illus. 1939.

<sup>3</sup> For details see VOLIN, LAZAR. *AGRARIAN COLLECTIVISM IN THE SOVIET UNION*. *Jour. Polit. Econ.* 45: 606-633, 759-788. 1937.

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TABLE 1.—Sown area, number of peasant households, and number of workers per collective farm in specified regions of the Soviet Union, July 1, 1938

REGION	PER COLLECTIVE FARM		
	COLLECTIVELY SOWN AREA	PEASANT HOUSEHOLDS	ACTIVE WORKERS ¹
	1,000 acres	Number	Number
Total Soviet Union	1.2	78	169
Ukraine	1.9	141	291
Eastern Russia:			
Lower and Middle Volga	4.1	136	278
Ural	1.9	83	183
West Siberia	1.5	63	147
East Siberia	1.2	62	160
Far eastern Siberia	1.4	47	121
Kazakhstan	1.7	79	161
Uzbek Republic ²	0.7	89	210

¹ Figures for 1937.² In Turkestan.

As table 1 shows, collectives in all eastern regions except the cotton-growing Turkestan are larger than the average for the Soviet Union when measured by the size of the sown area. In Siberia and the far east, however, the collectives are smaller than in the Volga area and even than in the Ukraine, where land is much less abundant. The average number of families and workers in Siberian collectives is also smaller and is even below the average for the Soviet Union. Moreover, mechanization, as indicated in table 2, appears to be less extensive to the eastward, except in the region of the Pacific, where it has gone very far. The Government, which has been bent during the past few years on expansion of acreage beyond the Ural Mountains, took steps to increase the labor supply in Siberian collectives by organizing a new migration of peasants from the more densely settled regions of European Russia. The Government program inaugurated in 1940 also called for increased mechanization, with the organization of additional machine-tractor stations.

TABLE 2.—Percentage of various field operations performed by tractors on collective farms in specified regions of the Soviet Union, 1937

REGION	SPRING-			HARVESTING-		FALL-	
	PLOWING	SOWING		GRAINS AND LEGUMES	WITH COMBINES ONLY	SOWING	PLOWING
		TOTAL	GRAINS				
	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Total Soviet Union	73.9	42.5	46.4	39.3	33.6	45.0	67.4
Ukraine	85.0	39.9	44.6	44.5	39.6	38.7	71.6
Eastern Russia:							
Middle and Lower Volga	91.4	75.5	85.1	74.5	58.9	85.0	84.9
Ural	76.9	54.4	57.3	48.3	43.5	60.7	67.7
West Siberia	68.4	50.1	39.8	47.4	45.9	43.9	80.5
East Siberia	60.5	31.8	33.6	16.8	13.7	36.9	87.5
Far eastern Siberia	97.4	65.3	75.1	83.4	70.5	60.7	95.6
Kazakhstan	66.8	43.0	44.6	54.8	44.0	73.7	66.3
Uzbek Republic ¹	(2)	27.4	13.8	24.7	23.4	27.2	95.5

¹ In Turkestan.² No data given.

Official sources.


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All the familiar defects and inefficiencies of Soviet mechanized farming, such as frequent breakdowns and stoppages of tractors and combines, shortage of spare parts, waste of fuel, and excessive turnover of personnel, have manifested themselves in eastern Russia, often in an aggravated form. Combine harvesting in Siberia proved a particularly weak spot, and nearly every season a number of experienced operators from the south were detailed by the Government to help out with the harvest in Siberia after they were through in their own districts. An important obstacle to efficient combine harvesting often encountered was the luxuriant growth of weeds in the fields, which makes combine operations difficult.

The war may reduce still further the efficiency of mechanized farming in eastern Russia through the depletion of trained personnel drawn into the army and the greater difficulty of replacing worn-out machinery and spare parts. On the other side of the ledger, there should not be overlooked the higher morale and greater zeal of the working force in the face of national danger, which may, to some extent, compensate

TABLE 3.—Number of tractors, combines, and trucks in eastern Russia, by regions, 1938

| REGION                                      | TRACTORS       | COMBINES       | TRUCKS         |
|---------------------------------------------|----------------|----------------|----------------|
|                                             | <i>Number</i>  | <i>Number</i>  | <i>Number</i>  |
| Middle and Lower Volga: <sup>1</sup>        |                |                |                |
| Kuibyshev .....                             | 11,754         | 5,565          | 4,311          |
| Tatar .....                                 | 5,944          | 2,799          | 2,780          |
| Saratov .....                               | 13,935         | 5,488          | 4,124          |
| Stalingrad .....                            | 16,068         | 6,232          | 3,786          |
| German Volga .....                          | 6,146          | 2,003          | 1,536          |
| Total .....                                 | 53,847         | 22,087         | 16,537         |
| Ural:                                       |                |                |                |
| Perm <sup>2</sup> .....                     | 5,114          | 1,773          | 1,545          |
| Sverdlovsk .....                            | 4,552          | 1,313          | 1,336          |
| Bashkir .....                               | 7,597          | 3,961          | 4,353          |
| Orenburg .....                              | 13,139         | 6,545          | 5,873          |
| Chelyabinsk .....                           | 14,453         | 6,871          | 5,746          |
| Total .....                                 | 44,855         | 20,463         | 18,853         |
| West Siberia:                               |                |                |                |
| Omsk .....                                  | 11,253         | 4,982          | 4,738          |
| Novosibirsk .....                           | 10,304         | 4,308          | 3,529          |
| Altai .....                                 | 14,749         | 7,291          | 6,213          |
| Total .....                                 | 36,306         | 16,581         | 14,480         |
| East Siberia:                               |                |                |                |
| Krasnoyarsk .....                           | 7,197          | 2,564          | 2,881          |
| Irkutsk .....                               | 3,076          | 832            | 869            |
| Buryat-Mongol .....                         | 1,248          | 275            | 911            |
| Yakut .....                                 | 427            | 85             | 111            |
| Chita .....                                 | 2,465          | 671            | 1,465          |
| Total .....                                 | 14,413         | 4,427          | 6,237          |
| Far eastern Siberia .....                   | 7,504          | 3,073          | 3,447          |
| Kazakhstan .....                            | 25,646         | 9,522          | 11,017         |
| Turkestan or Central Asia:                  |                |                |                |
| Uzbek .....                                 | 22,722         | 1,497          | 5,969          |
| Turkmen .....                               | 4,225          | 175            | 1,100          |
| Tadzhik .....                               | 3,832          | 82             | 1,167          |
| Kirghiz .....                               | 5,128          | 779            | 1,984          |
| Total .....                                 | 35,907         | 2,533          | 10,220         |
| Total eastern Russia .....                  | 218,478        | 78,686         | 80,791         |
| Total Soviet Union .....                    | 483,513        | 153,792        | 195,770        |
|                                             | <i>Percent</i> | <i>Percent</i> | <i>Percent</i> |
| Percentage eastern Russia is of total ..... | 45             | 51             | 41             |

<sup>1</sup> Territory not strictly comparable with that in tables 1 and 2.

<sup>2</sup> Formerly part of Sverdlovsk Province.

for the lack of experience. Beneficial results were also expected from a new system of bonuses paid in kind for work during the 1941 harvest, according to a statement of an assistant commissar of agriculture in *Pravda* for October 2, 1941.

The most serious problem with which mechanized eastern agriculture may be faced is that of shortage of petroleum, 90 percent of which in 1938 was produced in the Caucasian, mainly Baku, oilfields. To economize petroleum, horse-drawn implements and hand tools have been used increasingly since the beginning of the Russo-German war.

In addition to collective farms organized by pooling the formerly individual peasant holdings, there are the so-called state farms owned and operated by the Government outright. Less than 40 percent of the total number of Soviet state farms are in eastern Russia, but they account for nearly 50 percent of the total Russian acreage in this type of farm. These units, which were often very large in size, were much in the limelight in the early thirties, heralded as a new type of socialist large-scale mechanized farming. But its importance has since been considerably deflated. The larger state farms have been subdivided, stripped of part of their land, which has been assigned by the Government to the collectives, and, in general, they have become of secondary importance in the Soviet agricultural economy. The sown acreage of state farms in eastern Russia in 1938 represented a little over 10 percent of the sown area of the collectives.<sup>4</sup>

#### CROPS AND LIVESTOCK

With the exception of the cotton-growing regions of Turkestan with their intensive agriculture, eastern Russia is characterized by extensive grain farming. Winter rye, while still important in the western part of the Volga area, is of secondary importance east of the lower and middle Volga, except in the Ural districts of Perm and Bashkir Republic. Winter wheat acreage is insignificant except in Turkestan. The leading crop, the staple of eastern Russia, is spring wheat. It occupies from a third of sown acreage in the Volga area to a half in western Siberia. About 80 percent of the Russian spring wheat acreage is concentrated in eastern Russia, and the grain, especially in the Volga region, is of excellent quality. Thus, although the Russians have lost through Nazi occupation much of their winter wheat and winter rye areas, they have retained the larger part of their spring wheat belt.<sup>5</sup> But the yields of spring wheat are lower than those of winter wheat and rye, thus diminishing the importance of this area in the total Russian grain production. Of wheat alone, eastern Russia accounted during 1933-35 for over a half of the total Russian output.

The grain ranking next in importance to wheat is oats, which is widely grown in eastern Russia with the exception of Turkestan. On the other hand, outside of

<sup>4</sup> For a more detailed discussion of state farms see LADEJINSKY, W. SOVIET STATE GRAIN FARMS. *Foreign Agr.* 2: [439]-454. 1938; and TIMOSHENKO, V. P. SOVIET AGRICULTURAL REORGANIZATION AND THE BREAD-GRAIN SITUATION. Stanford Univ., Food Res. Inst. Wheat Studies 13: 309-376. 1937. (P. 320.)

<sup>5</sup> The distribution of the spring and winter wheat in the Soviet Union is the reverse of that in the United States, where winter wheat predominates, representing more than two-thirds of the total as against something over one-third in the Soviet Union. In Canada, however, spring wheat predominates to an even greater extent than in the Soviet Union, comprising over 95 percent of the wheat acreage. Thus, from the standpoint of distribution of the wheat acreage between spring and winter varieties the Soviet Union occupies an intermediate position between the United States and Canada.

TABLE 4.—Area under specified crops in eastern Russia, by regions, 1938

| REGION                                  | WINTER<br>RYE | SPRING<br>WHEAT | OATS    | SPRING<br>BARLEY | SUN-<br>FLOWER<br>SEED | POTA-<br>TOES | VEGE-<br>TABLES | LEGUMES | OTHER<br>CROPS | TOTAL   |
|-----------------------------------------|---------------|-----------------|---------|------------------|------------------------|---------------|-----------------|---------|----------------|---------|
|                                         | 1,000         | 1,000           | 1,000   | 1,000            | 1,000                  | 1,000         | 1,000           | 1,000   | 1,000          | 1,000   |
|                                         | acres         | acres           | acres   | acres            | acres                  | acres         | acres           | acres   | acres          | acres   |
| Middle and<br>Lower Volga: <sup>1</sup> |               |                 |         |                  |                        |               |                 |         |                |         |
| Kuibyshev ....                          | 2,195:        | 3,242:          | 1,047:  | 171:             | 465:                   | 357:          | 46 :            | 300 :   | 1,381:         | 9,204   |
| Tatar .....                             | 2,494:        | 1,375:          | 1,454:  | 71:              | 64:                    | 449:          | 36 :            | 623 :   | 1,402:         | 7,968   |
| Saratov .....                           | 1,732:        | 3,054:          | 725:    | 319:             | 517:                   | 152:          | 39 :            | 229 :   | 1,503:         | 8,270   |
| Stalingrad ...                          | 2,052:        | 3,807:          | 385:    | 669:             | 345:                   | 121:          | 50 :            | 14 :    | 2,404:         | 9,847   |
| German Volga ..                         | 664:          | 1,666:          | 101:    | 209:             | 122:                   | 45:           | 14 :            | 16 :    | 792:           | 3,529   |
| Total .....                             | 9,137:        | 13,044:         | 3,712:  | 1,439:           | 1,513:                 | 1,124:        | 185 :           | 1,182 : | 7,482:         | 38,818  |
| Ural:                                   |               |                 |         |                  |                        |               |                 |         |                |         |
| Perm <sup>3</sup> .....                 | 999:          | 576:            | 1,099:  | 246:             | - :                    | 187:          | 25 :            | 108 :   | 628:           | 3,868   |
| Sverdlovsk ...                          | 461:          | 741:            | 687:    | 131:             | - :                    | 174:          | 26 :            | 119 :   | 298:           | 2,637   |
| Bashkir .....                           | 2,047:        | 2,609:          | 1,635:  | 79:              | 186:                   | 368:          | 43 :            | 255 :   | 1,356:         | 8,578   |
| Orenburg .....                          | 1,397:        | 4,345:          | 925:    | 268:             | 428:                   | 142:          | 24 :            | 29 :    | 1,163:         | 8,721   |
| Chelyabinsk ...                         | 911:          | 4,160:          | 1,669:  | 246:             | 81:                    | 236:          | 41 :            | 251 :   | 676:           | 8,271   |
| Total .....                             | 5,815:        | 12,431:         | 6,015:  | 970:             | 695:                   | 1,107:        | 159 :           | 762 :   | 4,121:         | 32,075  |
| West Siberia:                           |               |                 |         |                  |                        |               |                 |         |                |         |
| Omsk .....                              | 768:          | 3,468:          | 1,594:  | 273:             | 81:                    | 281:          | 31 :            | 173 :   | 1,082:         | 7,751   |
| Novosibirsk ..                          | 1,086:        | 3,104:          | 2,148:  | 190:             | 13:                    | 368:          | 53 :            | 39 :    | 973:           | 7,974   |
| Altai .....                             | 235:          | 6,094:          | 1,794:  | 112:             | 243:                   | 223:          | 33 :            | 20 :    | 983:           | 9,737   |
| Total .....                             | 2,089:        | 12,666:         | 5,536:  | 575:             | 337:                   | 872:          | 117 :           | 232 :   | 3,038:         | 25,462  |
| East Siberia:                           |               |                 |         |                  |                        |               |                 |         |                |         |
| Krasnoyarsk ..                          | 522:          | 1,931:          | 1,398:  | 217:             | 3:                     | 139:          | 25 :            | 17 :    | 379:           | 4,631   |
| Irkutsk .....                           | 392:          | 485:            | 456:    | 105:             | (4) :                  | 91:           | 13 :            | 22 :    | 254:           | 1,818   |
| Buryat-Mongol:                          | 27:           | 329:            | 210:    | 36:              | - :                    | 25:           | 6 :             | 1 :     | 322:           | 956     |
| Yakut .....                             | 5:            | 75:             | 26:     | 52:              | - :                    | 6:            | 1 :             | - :     | 83:            | 248     |
| Chita .....                             | 16:           | 680:            | 413:    | 79:              | - :                    | 65:           | 13 :            | 1 :     | 196:           | 1,463   |
| Total .....                             | 962:          | 3,500:          | 2,503:  | 489:             | 3:                     | 326:          | 58 :            | 41 :    | 1,234:         | 9,116   |
| Far eastern                             |               |                 |         |                  |                        |               |                 |         |                |         |
| Siberia .....                           | 25:           | 817:            | 643:    | 21:              | 10:                    | 184:          | 57 :            | 2 :     | 462:           | 2,221   |
| Kazakhstan ....                         | 495:          | 5,039:          | 1,427:  | 892:             | 369:                   | 252:          | 50 :            | 13 :    | 3,552:         | 15,089  |
| Turkestan or                            |               |                 |         |                  |                        |               |                 |         |                |         |
| Central Asia:                           |               |                 |         |                  |                        |               |                 |         |                |         |
| Uzbek .....                             | - :           | 1,403:          | 2:      | 608:             | 1:                     | 49:           | 51 :            | 26 :    | 4,859:         | 6,999   |
| Turkmen .....                           | - :           | 120:            | - :     | 48:              | - :                    | 4:            | 9 :             | 8 :     | 824:           | 1,013   |
| Tadzhik .....                           | - :           | 658:            | 2:      | 245:             | 1:                     | 20:           | 11 :            | 47 :    | 992:           | 1,976   |
| Kirghiz .....                           | 1:            | 701:            | 207:    | 459:             | 7:                     | 31:           | 9 :             | 6 :     | 1,103:         | 2,524   |
| Total .....                             | 1:            | 2,882:          | 211:    | 1,360:           | 9:                     | 104:          | 80 :            | 87 :    | 7,778:         | 12,512  |
| Total eastern                           |               |                 |         |                  |                        |               |                 |         |                |         |
| Russia .....                            | 18,524:       | 53,379:         | 20,047: | 5,746:           | 2,936:                 | 3,969:        | 706 :           | 2,319 : | 27,667:        | 135,293 |
| Total Soviet                            |               |                 |         |                  |                        |               |                 |         |                |         |
| Union .....                             | 52,337:       | 66,538:         | 44,187: | 21,033:          | 7,770:                 | 18,199:       | 3,261 :         | 6,224 : | 118,837:       | 338,386 |
| Percentage                              | Percent       | Percent         | Percent | Percent          | Percent                | Percent       | Percent         | Percent | Percent        | Percent |
| eastern Russia:                         |               |                 |         |                  |                        |               |                 |         |                |         |
| is of total ...                         | 35 :          | 80 :            | 45 :    | 27 :             | 38 :                   | 22 :          | 22 :            | 37 :    | 23 :           | 40      |

<sup>1</sup> Territory not strictly comparable with that in tables 1 and 2.<sup>2</sup> Including 378,000 acres under mustard seed.<sup>3</sup> Formerly part of Sverdlovsk Province.<sup>4</sup> Less than 500 acres.<sup>5</sup> In addition, 383,000 acres were under winter wheat.<sup>6</sup> In addition, 2,045,000 acres were under winter wheat.<sup>7</sup> In addition, 277,000 acres were under winter barley.

Turkestan relatively little barley is grown, although it has been pointed out that it is well adapted to the climatic conditions of the semiarid zone and is especially useful under Russian conditions as a mild weed combater.<sup>6</sup> The grain crop peculiar to

<sup>6</sup> JASNY, N. COMPETITION OF GRAINS. 606 pp. 1940. (Stanford Univ. Food Res. Inst., Grain Econ. Ser. No. 2.) See p. 525.



Turkestan is rice, of which nearly 300,000 acres were cultivated in 1938. A larger acreage, however, was devoted to this crop 10 years earlier, before rapid cotton expansion encroached on rice. There is also a very small and declining rice area in the far east. Eastern Russia accounted during 1933-37 for over a third of the aggregate Soviet production of all grains and legumes.

There has been a substantial increase in the acreage under potatoes and vegetable crops in eastern regions in recent years. Mustard seed and sunflower seed, an important source of Russian edible vegetable oil, are cultivated in the lower Volga area mostly to the west of the Volga River. Some 240,000 acres are under soybeans in the far east. Melons are a specialty of the lower Volga, and grapes, apricots, and other fruits are grown in Turkestan. A little low-grade tobacco is grown in the lower Volga. The sugar beet acreage is insignificant in eastern Russia.

The outstanding industrial crop produced in the eastern regions is cotton. Just as spring wheat is the staple crop of the Volga Siberian area so cotton is the staple of Turkestan, or the so-called Central Asiatic Republics. Although cotton is also grown under irrigation in eastern Transcaucasia and was introduced during the past decade as a dry-farming crop in North Caucasus, southern Ukraine, and Crimea, Turkestan remains the principal cotton area of the Soviet Union, accounting for about three-fourths of the Russian production. Cotton has been grown in Turkestan under irrigation since time immemorial. After the conquest of the country by the Russians during the second half of the nineteenth century, the native inferior varieties of cotton were replaced by American types, and the growing of cotton for the needs of the important Russian textile industry, concentrated largely around Moscow, was stimulated. Railroads connecting the cotton-growing regions with the Caspian Sea (with a terminus at the port of Krasnovodsk on the eastern shore of the Caspian Sea) and with Moscow through Orenburg and Samara (the present Kuibyshev) were constructed before the first World War. New irrigation works were undertaken and various other measures were adopted to push cotton cultivation.

The Soviet Government, bent on attaining complete self-sufficiency in the matter of cotton supply, pursued the cotton-expansion program even more energetically. A new railroad connecting Turkestan with Siberia provided a convenient means of supplying the cotton-growing regions with grain. The small native farming was thoroughly collectivized, not without considerable resistance of the local population, and much attention has been paid to irrigation and agricultural technique. Increased cultivation of alfalfa as a predecessor of cotton was stressed. New varieties of cotton, particularly long-staple cotton, were introduced. The Uzbek Republic with its fertile Ferghana Valley is the principal cotton-growing region in Turkestan, accounting for over 40 percent of Russian acreage. Altogether 3,350,000 acres were devoted to cotton in 1938 in the central Asiatic republics and southern Kazakhstan.<sup>7</sup> The bulk of the Russian raw-cotton supply, therefore, has not been menaced by Nazi invasion as is the textile industry in the Moscow industrial region.

In addition to the fiber, the seed of cotton is a source of oil and oil cake. Turkestan is the chief source of these products in the Soviet Union. Cottonseed oil is the principal vegetable oil of eastern Russia, with sunflower-seed oil next in importance. Of the eastern Russian commercial output of 244 million pounds of all types of

<sup>7</sup> For details, see MICHAEL, LOUIS G. COTTON GROWING IN THE SOVIET UNION. Foreign Agr. 2: [353] -382, illus. 1938.

TABLE 5.—Livestock numbers in eastern Russia, by regions, 1938

| REGION                                      | HORSES           | CATTLE           | HOGS             | SHEEP AND GOATS  |
|---------------------------------------------|------------------|------------------|------------------|------------------|
|                                             | <i>Thousands</i> | <i>Thousands</i> | <i>Thousands</i> | <i>Thousands</i> |
| Middle and Lower Volga: <sup>1</sup>        |                  |                  |                  |                  |
| Kuibyshev .....                             | 233.             | 760              | 273              | 1,361            |
| Tatar .....                                 | 329              | 657              | 310              | 1,338            |
| Saratov .....                               | 116              | 556              | 246              | 986              |
| Stalingrad .....                            | 180              | 1,035            | 310              | 1,401            |
| German Volga .....                          | 34               | 220              | 119              | 291              |
| Total .....                                 | 892              | 3,228            | 1,258            | 5,377            |
| Ural:                                       |                  |                  |                  |                  |
| Perm <sup>2</sup> .....                     | 198              | 503              | 288              | 535              |
| Sverdlovsk .....                            | 187              | 600              | 261              | 470              |
| Bashkir .....                               | 459              | 1,136            | 342              | 1,765            |
| Orenburg .....                              | 190              | 858              | 191              | 1,253            |
| Chelyabinsk .....                           | 262              | 1,120            | 274              | 1,358            |
| Total .....                                 | 1,296            | 4,217            | 1,356            | 5,381            |
| West Siberia:                               |                  |                  |                  |                  |
| Omsk .....                                  | 351              | 1,396            | 427              | 1,463            |
| Novosibirsk .....                           | 505              | 1,708            | 704              | 1,580            |
| Altai .....                                 | 433              | 1,466            | 408              | 2,139            |
| Total .....                                 | 1,289            | 4,570            | 1,539            | 5,182            |
| East Siberia:                               |                  |                  |                  |                  |
| Krasnoyarsk .....                           | 328              | 767              | 383              | 1,265            |
| Irkutsk .....                               | 163              | 436              | 181              | 294              |
| Buryat-Mongol .....                         | 120              | 383              | 68               | 445              |
| Yakut .....                                 | 163              | 392              | 14               | (3)              |
| Chita .....                                 | 213              | 502              | 137              | 833              |
| Total .....                                 | 987              | 2,480            | 783              | 2,837            |
| Far eastern Siberia .....                   | 124              | 313              | 277              | 67               |
| Kazakhstan .....                            | 639              | 3,095            | 368              | 5,288            |
| Turkestan or Central Asia:                  |                  |                  |                  |                  |
| Uzbek .....                                 | 381              | 1,411            | 76               | 3,980            |
| Turkmen .....                               | 64               | 233              | 23               | 1,831            |
| Tadzhik .....                               | 102              | 500              | 21               | 1,635            |
| Kirghiz .....                               | 362              | 486              | 91               | 1,886            |
| Total .....                                 | 909              | 2,630            | 211              | 9,332            |
| Total Eastern Russia .....                  | 6,136            | 20,533           | 5,792            | 33,464           |
| Total Soviet Union .....                    | 16,221           | 50,921           | 25,716           | 66,595           |
| Percentage Eastern Russia is of total ..... | <i>Percent</i>   | <i>Percent</i>   | <i>Percent</i>   | <i>Percent</i>   |
|                                             | 38               | 40               | 23               | 50               |

<sup>1</sup> Territory not strictly comparable with that in tables 1 and 2.<sup>2</sup> Formerly part of Sverdlovsk Province.<sup>3</sup> Less than 500.

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vegetable oil in 1934, cottonseed oil constituted 66 percent and sunflower-seed oil 23 percent. However, in the total Soviet output (820 million pounds) the proportion was reversed; namely, cottonseed oil 24 percent and sunflower-seed oil 58 percent.

Cattle and sheep farming has always been important in eastern Russia, especially in the lower Volga and Kazakhstan with their abundant pastures. This still holds true today in spite of the heavy blow dealt by collectivization to animal husbandry in the early thirties, from which it had only partly recovered at the outbreak of the present war. In 1938 these regions had less than two-thirds of the cattle, approximately one-third of the sheep and goats, and about three-fourths of the hogs they had had 10 years earlier. But the east still possessed 40 percent of all the cattle in Russia, 50 percent of the sheep and goats, but less than 25 percent of the hogs.

The most important commercial dairy regions of the Soviet Union are in western Siberia, northern Kazakhstan, and the Ural area. In 1934, the last year for which detailed data are available, these regions accounted for over a third of total Russian commercial butter production. Siberian butter has long been known on Western European markets. Butter exports from the Soviet Union, however, had fallen off sharply from an average of about 150 million pounds a year during 1909-13 to only about 60 million pounds a year during 1933-37.

THE OUTLOOK FOR THE WAR PERIOD

In spite of natural limitations on agricultural production, eastern Russia, considered as a whole, is normally a surplus-food-producing area, although parts of it, notably in the far east⁸ and Turkestan, are deficit regions. Its most serious agricultural deficiency is in sugar, for which it normally relies on the Ukraine and central Russia. It ships livestock products and grain west and provides most of the cotton and wool for the Russian textile industry in central and northwestern European Russia. The eastern grain surplus, however, when account is taken of the requirements of the deficit regions of the Ural, Turkestan, and the far east, is much smaller than that of the southern regions occupied or threatened by the Nazis. This is roughly indicated by figures of interregional grain shipments for 1937 given in table 6.

However, an increase of grain production in eastern Russia should be possible. In the first place, some of the more than 3 million acres of high-yielding irrigated land planted to cotton in Turkestan could be devoted to grain if the Government, which maintains complete control over agriculture, deemed such a shift necessary.

In the second place, more of the land that at present is not under crops could be brought under cultivation, though it is likely to be for the most part low-yielding land. The Soviet Government, in fact, embarked on such a program of expansion in western Siberia and Kazakhstan before the war in the spring of 1940. Between 1941 and 1942 it was contemplated, for instance, to increase grain acreage by 2.4 million acres, and this can hardly be considered the limit of acreage extension for eastern Russia as far as land alone is concerned. The limiting factors that are likely to be

⁸ An important contribution to the food supply, however, is made by the far eastern fisheries, which account for a fourth of the Russian fish catch. In addition they represent also an important source of fish supply for the Japanese, who have long enjoyed fishing rights in Russian far-eastern waters.

TABLE 6.—Interregional shipments of grain in the Soviet Union, 1937

REGION	SHIPMENTS FROM	SHIPMENTS INTO	NET SURPLUS (+) OR DEFICIT (-)
	: Million short tons	: Million short tons	: Million short tons
Southwest ¹	3.9	: 0.2	: + 3.7
South ²	1.8	: 0.3	: + 1.5
Central.....	1.9	: 3.6	: - 1.7
North.....	0	: 0.5	: - 0.5
Northwest.....	0.1	: 2.8	: - 2.7
Upper Volga.....	0.5	: 1.0	: - 0.5
Lower Volga.....	2.1	: 0.8	: + 1.3
Ural.....	0.8	: 1.0	: - 0.2
West Siberia.....	1.3	: 0.1	: + 1.2
East Siberia.....	0.3	: 0.3	: -
Turkestan.....	0	: 0.9	: - 0.9
Far eastern Siberia ..	0	: 0.9	: - 0.9
Transcaucasia.....	0	: 0.3	: - 0.3

¹ Urkraine and Crimea.² Don, Kuban, etc.

Planovoe Khozaistvo, No. 7, p. 27, 1938.

more serious are the shortages of tractors, of motor fuel, of labor, of seed, and of transportation⁹ and, last but not least, the weather. Yet each additional million acres sown should, on a conservative estimate and barring very adverse weather conditions, bring roughly between 200,000 and 300,000 tons of grain, exclusive of seed,¹⁰ or enough, especially with rationing, to take care of a million or more people.¹¹

⁹ In spite of the emphasis on railroad construction in the eastern regions, in recent years the railroad network of eastern Russia is much less extensive than that of the older and more densely populated western regions. Thus, for instance, on January 1, 1936, the Saratov and Kuibyshev Provinces had 24-25 miles of railroads per thousand square miles of territory; the Stalingrad Province, 11 miles; Bashkir Republic, 7; western Siberia (Novosibirsk and Altai regions), 5; Kazakhstan, 3; and the far eastern area, only 2 miles. On the other hand, the Ukraine had 52 miles, the Kursk Province in central Russia, 44, and the western part of North Caucasus, 29 miles.

¹⁰ The yields of the irrigated land of Turkestan would, of course, be considerably higher.

¹¹ The overwhelming importance of grain in the normal Russian diet, well-known to observers and students of Russian conditions, has been confirmed by a recent study of M. K. Bennett, who shows that between 80 and 89 percent of the total food calories are derived from cereals and potatoes and predominantly from wheat and rye. BENNET, M. K. WHEAT IN NATIONAL DIETS. Stanford Univ., Food Res. Inst. Wheat Studies 18: 37-76, illus. 1941. (See p. 61.)